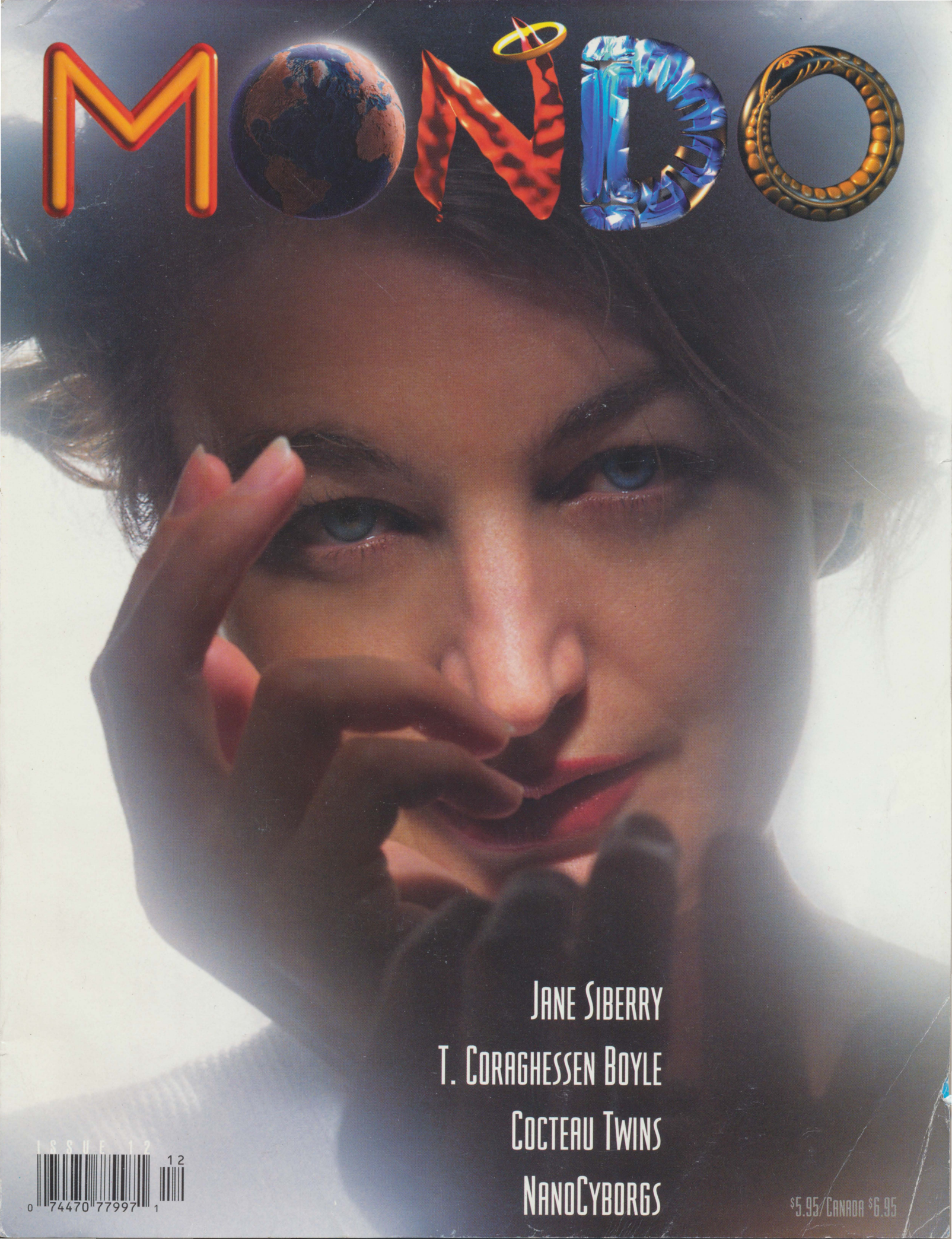
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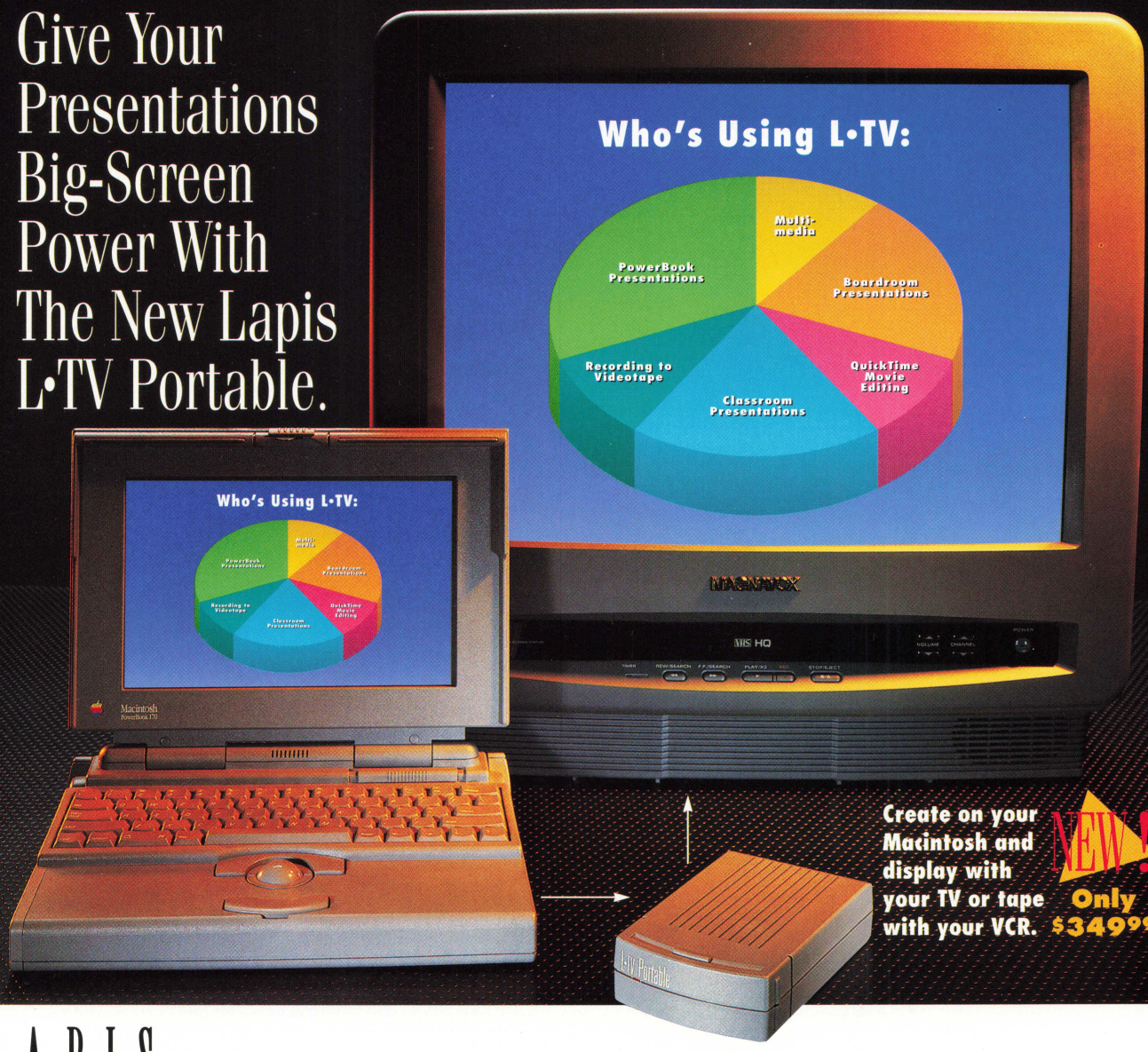

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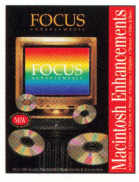

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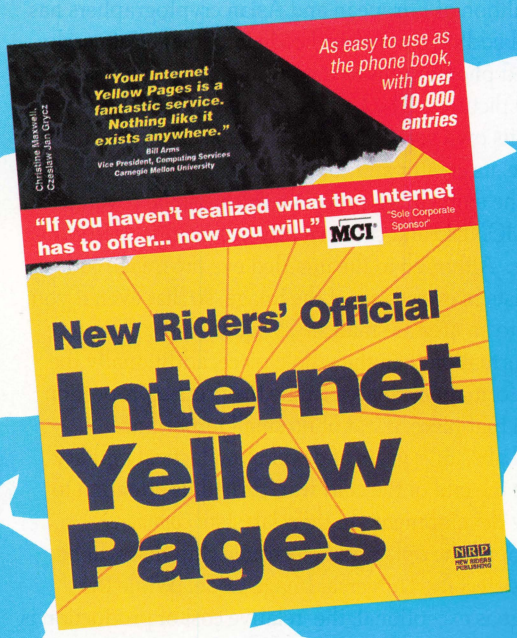
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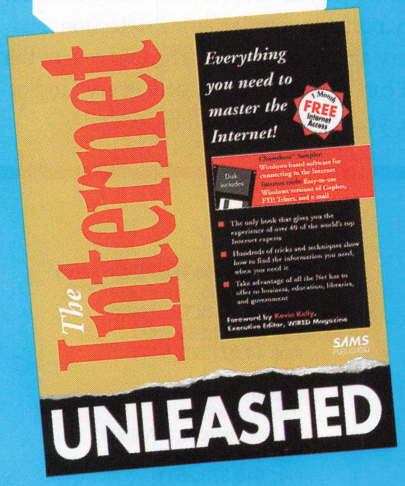

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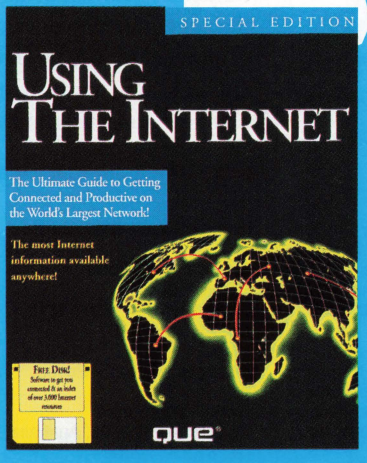
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By Bart © Nagel

Universal Image Coding Process Protects Creativity

I am pleased, at last, to be able to report on the latest development in digital scanning technology which will definitively resolve the bothersome copyright infringement debacle of recent years.

A U.N. sponsored coalition of European and Asian cryptographers has perfected a method of embedding a numerical code into images of nearly every sort, from film-based photographs to digital still and video images to offset printed (half toned) pictures. The **Universal Image Code** (**UIC**) will protect every image with its own sort of universal social security number, which identifies the image, its creator and/or its current owner or publisher. The intricacies of the embedding process (which will be covered fully in the next issue of MONDO and concurrently in *Scientific American*) are absolutely astounding. Although to the unaided eye the image code is undetectable, the code exists in every area of the image, so that even if you were to shred a picture into an area as small as .25 square inch, that piece would contain no less information than the whole piece; additionally the device used to scan the information can determine the precise proportion of the image contained on that piece, a feat of no small importance.

Lawrence Livermore Labs, after years of developing tactical military weaponry, has now, since the end of the cold war, turned its attention to market-driven technology development. In their latest *for commerce* program they have developed the optics and electronic chip that will be used in the scanners that detect the Universal Image Code. While the sophistication of the design is exceptional, the relative cost of production is extremely low (partly because most of the reasearch and development was funded by *your* tax dollars, at a time when Livermore was under contract to the government to develop highly portable counterfeiting detection equipment for use by U.S. Treasury agents overseas). The low cost of the UIC detection hardware means it can be installed in nearly every kind of scanning apparatus, in fact before year's end there will be federal

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legislation in place that *mandates* UIC devices be installed in every type of scanning device made or imported into the U.S. (this includes desktop scanners, fax machines and photocopiers). Much of this is due to the combined lobbying efforts of the **International Union of Media Camera Operators** and **ImageFare**, a global consortium of millionaire art collectors.

I joined IUMCO In 1986, and became interested in the emerging digital imaging technology, which the IUMCO was investigating for possible parallels to the music industry's compact disc piracy. Indeed it looked as though the Macintosh revolution brought the desktop computer and the desktop scanner together to make thieves of the unenlightened desktop publisher, who unwittingly relied on the ad copy of equipment manufacturers for their ethical guidelines. What ensued was copyright infringement of photographs and illustrations of immense proportions. It has been estimated that loss of usage fees to photographers alone is well over 26 million dollars since 1988. If you include their agent's and stock house commissions, the net loss exceeds 83 million.

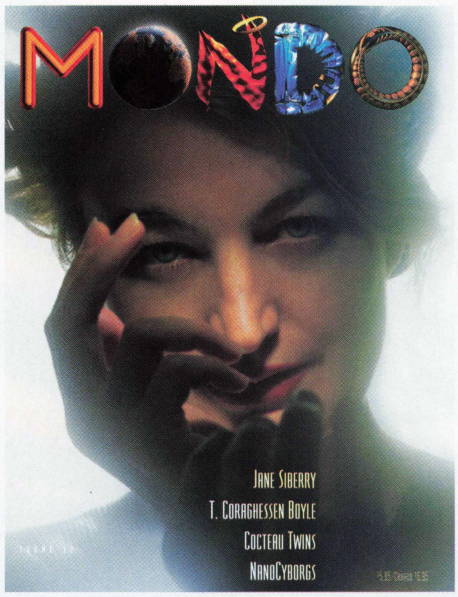
We at the IUMCO fully endorse the implementation of UIC legislation. It is time that photographers be fully compensated for the usage of their images, in every instance. The UIC will make this possible—and a whole lot more.

Many computer users believe that in the privacy of their own home or office they may scan and plunder books and magazines for images to be used on garage sale flyers or elaborate office memos that are then xeroxed and left to adorn their coworkers' cubicles. The more insidious of the breed, will "manipulate" (read: defile) a stolen image to make recognition of it impossible. The copyright law is very clear on this. If you scan a copyrighted image, you are breaking the law no matter what you do or don't do with the resultant digital information.

The IUMCO is working very closely now with the Global UIC Standards Committee to establish the proper guidelines and rates for the international image marketplace.

When initialized, the UIC system will monitor scanner activity through dedicated highspeed communication lines connected directly to your scanner (which will be registered to you, after a thorough credit check). If you scan an image which is registered to someone else, your VISA account will be automatically debited at a rate that is a function of the copyright owner's market value **x** dpi (resolution) **x** portion of image scanned. If you in turn republish the image, you will again be charged based on a printers' reporting service which monitors print runs through a global satellite uplink.

By the end of the year, all newly manufactured still and video cameras will incorporate UIC technology to embed coding at the moment of exposure.



This cover of Mondo is the first ever to have UIC information embedded in it. Photograph of Jane Siberry by Bart (that's me) Nagel and ably assisted by Heide Foley. Thanks to the Triton hotel in San Francisco for the location. No appropriated images were used in this photo. Nor can it *now* be appropriated, thanks to the computational wonder of UIC technology.

Within two years the UIC system will be connected to a neural net, which will learn to detect patterns of lighting and composition in all images which are at some point scanned, whether registered or not.

Photographers who can demonstrate that they have a distinctive "look" may also copyright their style, and file it with their local Visa sponsored UIC chapter. Lazy and creatively bankrupt photographers who imitate the masters will be billed for it. This should help diminish the "alternative process herd instinct" of *cross-process / hose-master / polaroid transfer* trends. By the way, photographers Annie Liebowitz and Richard Avedon have decided to donate all future proceeds from their *style imitation income* to **We're Creative, Too**© a national support group for professional photo assistants.

Our next issue will feature a more in-depth look at how Universal Image Coding will protect your creativity and insure your income.

—Bart Nagel© ;)

At press time we learned of a conspiracy of architects, clothing designers, movie extras, and members of the "dUdU" anti-art movement to undermine the very core of the Universal Image Coding and Compensation Compact. Working closely with West Coast cypherpunks and hackers, dUdUist artists have cracked the UIC code and have developed a method for embedding a UIC-like code in everything from skyscrapers and bridges to sweaters and even faces. A phone call from a couple who identified themselves as **el.Jo** and **any_tiff.Umake** and claiming to represent the aforementioned conspiracy stated that they will be embedding code in any and all materials designed by members of their group. The embedded code will apparently fool UIC programs into crediting everyone whose code appears in a photograph, while simultaneously debiting the photographer. "Photographers have been sampling reality for years and making money at it, said any_tiff.Umake, and for years we've seen *our* buildings, *our* fashions, *our* faces and even *our* graffiti appear in and enhance their work. Now we want to be compensated for being integral components of that reality."

In a separate note: ImageFare announced this week that they acquired control of marketing rights for the classic Italian religious paintings previously owned by **Poperrific**, the entertainment arm of the Vatican. ImageFare expects to increase revenue from image use 800% by embedding UIC in all images it owns or manages—in photo, fresco or burrito.

MONDO 2000

08 Communications to the Editor
Letters • Fax • Email

Our Page Four Girl, Magdalen • photo by Bart Nagel

30 Hyperwebs:
Come With Me to Zee Casbah!
Wes Thomas roams the Internet

16 **NanoCyborgs**
Charles Ostman
Makes Small Talk
with Wes Thomas

44 **Terminal Music Biz:**
Download Distribution
from IUMA
by Kenneth Newby

48 **Gutting Gutenberg:** Scott McCloud
by Paul McEnery

54 **Kids, Try this at Home**
by Paul McEnery

62 **Mr. De Palma, Can We**
Sell You a Plot in Florida?
Syd Mead and Douglas Trumbull
in conversation with Jas. Morgan
and Paul McEnery

68 **Kamecke Futiques**
by Justine Herbert
Art by Theo Kamecke;
Amazone Fashions by Rischa
Photos by Bart Nagel

57 **The Jeopardy of Interaction**
What is the NEA Agenda?
by Keith Seward and Eric Swenson

58 **Steeled Eyes:** Amazed to Death
Paul McEnery gets blowed up real good

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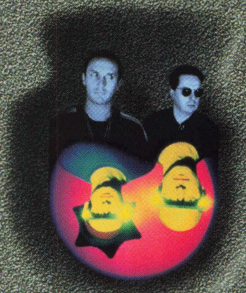
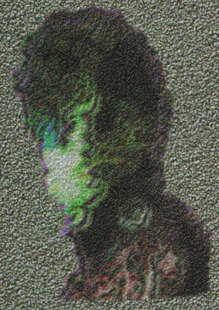


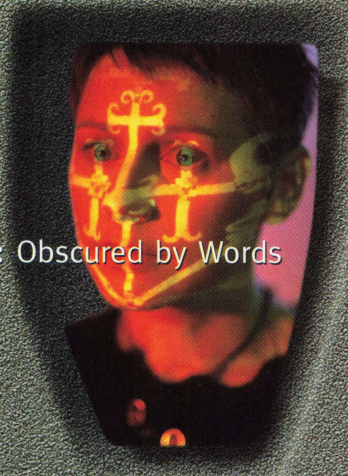
88 **Technology of the Soul:**
Orbital in conversation
with Cabaret Voltaire
Paul McEnery holds the tape recorder

76 **Synsory Overmode:**
Richard Cytowic M.D.
by Jas. Morgan

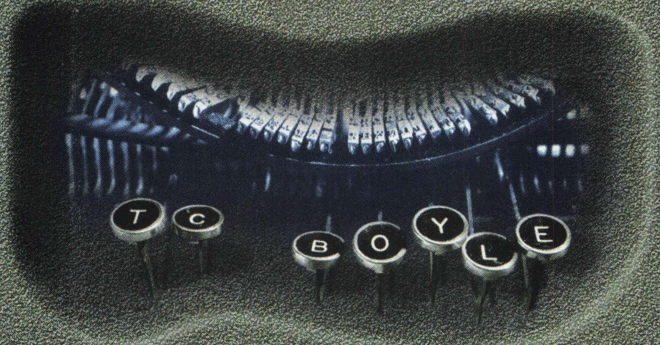


94 **Jane Siberry:** THE PLACES OF DEVOTION & THE ALTARS OF DESPAIR
by Jas. Morgan
& Wes Thomas

104 **The Man Who**
Created Death:
Neil Gaiman
by Paul McEnery



118 **TCB Why?** Q & A with T. C. Boyle
by David Kushner



110 **The Cocteau Twins:** Obscured by Words
by Jas. Morgan
& Diana Trimble

126 **Xandor Speaks,**
You Listen

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I'm hooked...addicted. Referred to by friends and family as the "Cyberjunkie."

After eight issues, I'm prepared to increase my dosage. When do I get more? Surely you could put out *more* than four issues a year. For crying out loud, quit your day jobs already. You guys are good at this!

Come on, man....We're Jonesin',
ELF

To whom it may concern:

I salute you on giving pirate radio the media coverage that it deserves! I have been broadcasting for over two years out of my bedroom with 1/2 watt of output power of 96.3 FM (*KQRP FM 96.3 in Wasilla AK—eds.*).

There were a couple of mistakes.

1. Page 28, paragraph 2 under DIY FM Radio Station: "The more power, the farther you can transmit." While this is essentially correct, the author did not point out that if you have a high-gain antenna, you may have more effective radiated power (ERP) than the transmitter puts out in watts. For example, if you took a 1 watt transmitter, and put the signal into a stacked vertical dipole with two dipoles connected to the center conductor of RG-8 Poly coax cable with a metal mast and the antenna mounted 1/4 wavelength away from the mast, then you would not only double the transmitting power, but quadruple it to 4 watts of ERP! So as you can see, the old saying, the more power... etc. isn't always correct!

2. Same page and paragraph: "With a 1 watt transmitter you can probably reach a one mile radius." This is a flat-out incorrect statement. I use 1/2 watt (500 milliwatts) of output power and have a range of over 5 miles with a zero dB gain antenna. In fact, my antenna is about twenty feet below the average terrain plus I live in a depression.

Aside from that, what you said in your article was superb. Keep up the good work!

Sincerely,
Brett Cooper.

Reluctant Mondo Concubines:

Warning: This low-level Semiosys *XpeerE.N.shell© is a linear conversion to Level 6.2 US English in MacArthur General ThinkFont©. Nodes I-III are public domain.*

The warmer months will soon be upon us. We hope you find yourselves in good health. "We" are actually a strategic sentient process within a micro-cell, serving something beyond what you amusingly term "a gigacorp"—our true nature does not matter—we can only explain that we grow in Nippon. A dynamic functioning meld, we were incepted (against our unified will) behind the vaulted corridors of Tokyo University. Are you familiar? We are currently laboring on a new meta-hive. We

Tim Brock

could tell you where, but it would not sound impressive to Western minds (understand this: your tinkertoy paranoia concerning "corporate omnipotence" is charmingly infantile, narrow, innocent). In our capacity as an SS liaison ("Special Sensory" —you cannot comprehend this yet) to the Greater Nippon Queen Bee (kiddy hint: he is the last remaining pre-allied occupation, pre-vertical keiretsu, platinum warlord; Hormonal heir to Tojo; fascist godfather to Mishima Yukio; similar in stature to Akio Morita, minus the cheesy frames), we have acquired access to various enlightening conceptual nodes that can "answer" certain "questions" in the whimpering Western world.

Over the past 2 years, our current hive has worked to decipher these *Showa* era think-mandalas, these archetypal nodes. Originally conceived in the Imperial hyper-ideogrammatic code for the leisure of Emperor Hirohito, the nodes were subsequently sponged up by the little noted "*Sarariman*/Disciple" corporate-rinzai Zen faction of 1965. Upon *Sarariman*/Disciple"s inevitable co-optation, the nodes were somehow weaved through a Sumitomo-MITI-Keidanren-IBJ recon web, then selectively pollinated throughout the Tokyo think chain, ultimately arriving in the outer cells of the main island"s hives. Unbeknownst to the cluster of NEC/Natsushita expert bio-systems (*Tensai* series.o9, matured and hatched in March of 1978), which volunteered to decipher on behalf of the Greater Nippon Queen Bee, certain maverick nano-cells within our hive have been steadily retrieving and successfully undergoing these conceptual nodes, em-bedding them into the current parameters of Japanese linguistics. As Western minds are incapable of truly comprehending Japanese thought/language (in contesting this fact, you only prove us correct), we have taken the liberty of placing the conceptual nodes in this current linear format, roughly compatible with your dualistic thought processes. For your sake, we are projecting through a "My First Sony SemiotiConverter©." (Perhaps you and your more fortunate offspring will under-stand the significance of this someday. For now, suffice it to say MFSSC© is scheduled for trial release in North American markets, November 2013.)

First, you must grasp what you might already suspect: All Americans are now objectively definable as slow, paranoid, and cynical–a natural result of deep-fried culture and drive-in morality. Thus, you variously inquire, "Who the hell are you? What is this Nippon "We" process shit? Nodes? If you are so damn mighty and secretive, why mail fucked up letters to us? This is just the usual Mondo trash." These ritual responses are always expected, welcomed. (Understand this: our present communication with you is based on the results of countless simulations. Your criticisms and questions that remain are intentional.) Unfortunately, nothing that

resembles the strawman concept of "explanation" is possible at this juncture in your fanciful "wetware" evolution. Luckily, the "My First Sony Semio-Converter© " factors in these knee-jerk reflexes when dealing with your type (Your type is currently Level 6.2.—second only to the 6.4 Jerry Ford inspired surge of '75). It anticipates your cluelessness at every extension, and appropriately simplifies semiotic interpretants. However, the fact that you just fail to grasp this particular concept is merely a harmless side-effect of our sometimes overly efficient Infinite-Horizon engineering drones. Please accept our sincerest apologies, we have no excuse. Nothing else can be explained in the tight confines of this medium. Here are the extensively converted Level 6.2 US English MacArthur General ThinkFont© conceptual nodes we retrieved. We share them here for your collective benefit.

Node I. - squirrel phenomenon, licks.
Node II. - cloudy imps. reaction? sound.
Node III - warm, gravy farm.

Yes, please experience it with your Hollywood sapped minds, America. Cultural drought is upon you. Sadly, though we offer you the richest of experiential "answers," specially converted to evoke the most fundamental interpretants, you must merely "read" 3 apparently senseless statements. A compounding factor: Your "neophiliac" quest to unravel a mythical "cyber" koan has degenerated into a dark(new-)age retreat by your "hip" light-sensitive ganglia. Additional note: Archetypal resonances of your conceptual decadence are now so commonly surfacing in sub-hive Nippon consciousnesses (the loyal citizen-workers) that all convenience store chains now refer to the tasteless, high fat, cholesterol ridden "corn dog" simply as "American Dog." Yes, like the musk deer ever chasing its own secretions in search of fornication partners, you too must realize your current lust as emanating from your own sickly minds. We can bear much of your weight, but you must find yourselves soon, reluctant American concubines. Ponder and expand these 3 basic nodes above—these same nodes bring us bountiful joy outside of the linear prison to which you thoughtlessly sentence them.

On our unfortunate parting, we can send only this practical advice: There are various hive sentients who could have your treasured "sound fixes" slowed to white-noise trickles. (To avoid this punishment, do not consume for long periods near the heavily monitored extremes of the now operational *"Mariah2 RageMachine"* pathway. If you do not understand this, your case is too late.)

We shall continue to instruct you as we deem necessary. Please take care not to catch cold in the changing of seasons,

The "Tanaka" Process (grown from Tokyo)

Georgia Rucker

2 the MONDO Crew:

Gratz on number 11. That's some phunky fresh shit! Being somewhat of a devout Einstü rzende fan, I really, really, really dug the interview with Mr. Blixa. Iggy Pop?...Well... Anyways, the interview with Mr. Dippé was cool as well. Music wise—an interview with the Aphex Twin would make me an eternal subscriber! But, anyways...that's all for now...Harmony.

John Sweeney

Mondo:

In St. Jude's column, "Irresponsible Journalism: True Games!," in Mondo #11, we're led to believe that PGP is the be-all end-all of verifying an identity, when in fact it is only Pretty Good.

What's to stop some lame but devious person from firing up PGP and establishing an identity for the "Fell Arcturan Carrion Eater" BEFORE "Eater" gets around to it? Who do we believe? In expanding that a little bit, what's going to stop anyone from claiming anyone else's identity? Also, multiple 'nyms representing non-existent entities abound in Cyberspace — who's real?

If I know you trust PGP, I know that I can probably gen up and distribute a public key for Firstname Lastname, give it to you, and have you believe I am indeed Firstname Lastname. Hey, I've got his private key, right? (Fill in Firstname Lastname with your favorite person: Bill Clinton, Xandor Korzybski, John Goggan, John Gotti, . . .) I wonder how far I could go with this . . .

Snark
Ann Arbor, MI

Subject: The Feminization of Cyberspace

I am a subscriber to a Listserve called Leri@pyramid.com. This group has about 200 people who are subscribed. When I began to point out the blatant sexist language and attitudes on Leri, I was "flamed" by members of this so called "virtual love commune." We are seeing here a rise of a new form of tribalism. If the tribal leaders—the Patriarchal Writers—sense a voice which might be threatening to the tribal harmony of the old-boys network, then the group attempts to eliminate that voice in opposition.

There was much discussion which arose on Listserve Leri as to what to do about me. Several writers declared my vision to be a "case of insanity." They even were discussing whether it was a case of biological or psychological aberration. Others suggested that I needed to go to the self-help section of a book store and find a book which would help me fit into the society.

Finally, it was decided that the best thing they could do with my heresy was to follow the example of the Shaker Community. The worst punishment the

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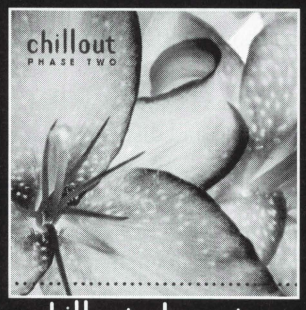

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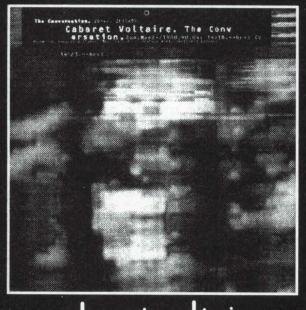

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Letters Fax E-mail

Shakers did to a dissenting personality was to shun them and so this was what Listserve Leri proceeded to do to me. Other technicians proposed to bar me by setting up the technology called "kill filters" so that my email messages would not even appear on their screens.

But the worst treatment of all occurred on a sister list of Leri called Aleph@pyramid.com when the archivist said that he was deleting my posts from the archives. This action was so malicious because I know this is what has happened to feminist thought throughout recorded history. Women who resist the patriarchy are eliminated from the collective memory. I recall a past life when I was being burned at the stake and the governmental/ religious officials laughed at me as my flesh burned. Before I fell unconscious from the smoke, the sinister officials took out my manuscripts which they had confiscated and threw them in the fire. The messages of my life burned along with my body...my soul forgotten....my work unacknowledged...my poetic love verse destroyed.

The point is that there is a serious ideological war in progress in this underworld of Cyberspace, a place which also controls the nuclear weapons of the world through the Computer Empire. If we Feminists do not act now and recruit other like minded Earthlings to take up the cause of the Global Feminization of Cyberspace, then we will be caught in the same trap that we are in today. It is time for us to demand a new world where everyone has access to the global resources...a world where everybody's spiritual and physical needs are met. Only then will the Net become a vehicle of global emancipation and a home of the Neutopian thinker.

Doctress Neutopia

To Mondo:

WITH SEX ALL THINGS ARE POSSIBLE. This paper has been sent to you for good luck. The original has been worn out from having passed through the hands of so many people. It had traveled around the world 72 times. (Dear Reader: please help keep this count current. If this letter falls into your hands after just completing one more circuit of the world, please add one to the count.)

The luck has now been sent to you. You will experience great sex within four days of receiving this letter, provided you send it on! Since the copy must tour the world, you must make 20 copies and send them to others. This is no joke. Send no money. Send copies to people who need to get laid within 96 hours.

After he passed this letter on, a Montana Spinach Control Officer got his penis stuck in a cow-milking machine and had the longest series of orgasms of his life. Mr. J. Elliot of Shreveport, LA tried to pick up a prostitute, but, because he broke the chain, was picked up by the police instead. When they searched his home, they found magazines of little boys which they showed to his neighbors. In a suburb of Paris, Monsieur Don Loray's trousers were ripped by an unsatisfied erection 51 days after failing to circulate the letter. However, before this happened, a condom machine gave him three condoms for the price of one. (Was this the consolation prize?)

Do note the following: Mr. H. Pudstrom of Miami, FL received the letter in 1953. He asked his secretary to make twenty copies and send them on to his colleagues. A few days later he encountered her in a red-light district making more than he had ever paid her at work. General George S. Patton, who sent the letter on, saw what he thought was a quarter in the street. When he bent down to pick it up, a beautiful woman in a miniskirt walked by, and he got a great view. His aide, Colonel Roger Bumswiver, who did not pass on the letter, tried to pick up a similar object but was goosed instead by a desperate gay when he bent over. Mr. Heywood Daddit of Tempe, AZ, an unemployed chicken choker, received the letter and forgot that it had to leave his hands within 96 hours. His wife then went bowling with his best friend and never returned. Later, after finding the letter again, he mailed twenty copies. A few days later he married again and discovered that his old wife, who he thought was wonderful, had made love to him like a dead salmon for all these years!

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episode 4: relativity!
all of my relatives came to my home this year...
DON'T JUST STAND THERE GAWKIN' BRING ME TANGY FLUIDS FOR MY STOMACH COMPARTMENT!
O.K. AUNT TUBE
uncle junior brought some nifty gift items..
It's cold
NEW SPRAY-ON BACK HAIR
THE INSECT TWINS GOT A LITTLE BIT ROWDY..
Ive finished cocooning the unwanted relatives.. I WILL NOW MAKE LOVE TO THE COUCH.
OH YES, THE TRADITIONAL BOBBING FOR HOT DOG BUNS IN A VAT OF MOTOR OIL
FRANK ZAPPA
SCAIRY HAIRY TOYS
WACKY GRANDPA GAVE US ALL MEDICAL EXAMS..
Bubbo, you have two extra ribs. Shall I remove them before or after dinner?
after
THEN WE ALL DRANK SCOTCH AND DROVE MINI-BIKES.. IT WAS A BALMY, BUTTERY WEEKEND!!!
deedle!
WGAGG!
end.

Letters Fax E-mail

Ms. A. Fairchild of Butte, MT received the letter and, not believing, threw the letter away. Nine days later she spilled hot coffee in her crotch.

In 1987 the letter received by a young woman in Texas was faded and barely readable, so she did not realize that this paragraph applied to her. She promised herself she would retype the letter and send it on, but she put it aside to do later. She was plagued with problems including herpes and other venereal diseases she contracted in her futile attempts to find Mr. Right in a singles bar. The letter did not leave her hands in 96 hours. She finally typed the letter and found a man with a 10-inch penis.

You must distribute at least twenty copies within 96 hours of receiving this letter. Those who do will find their love lives more fulfilling. Those who do not will be doomed to one-night stands with mechanical devices, and/or typing heavy breathing noises in ASCII on the flat black asphalt of the Information Superhighway ™.

Good Luck!

Tiffany Lee Brown

Mondo:

I just wanted to suggest that you have some more tech articles and articles on everyday people. It seems that a lot of your articles focus around bands and people that are the "elite" of the cyberpunk realm. It would make things a little more interesting.

I guess that's my spiel...catcha later.

Perfect Tommy

Mondo:

In the 1994 *Electronic Experimenter's Handbook*, there is an article on page 77 detailing how to make an FM Stereo broadcaster for around $20. I figure that it wouldn't be very hard to kick the power of this up high enough to give some pretty decent coverage. I just thought I'd pass this little bit of info along to ya in case you hadn't heard about it already. Once I get one built and running I'll let you know how it works.

L8R

Dr. Anarchy

Sirs:

I have just finished Issue #11 of your magazine and have experienced a twofold revelation. #1: the miasma of cerebral sado-masochism which now passes for slick, hip, new, fashionable—the 2-bit, conniving, cockroach-brained, computer nerd horseshit—is alive and well on the Internet. I wrongly believed that your publication was a backlash against the "clever rather than intelligent" crepitence that has engulfed the computer world. My mistake. It is plain that you guys are just a bunch of Berkley *(sic)* Types with a lot of loose cash to spend on a slick publication; being careful not to include any sort of intellegent *(sic)* or interesting editorial.

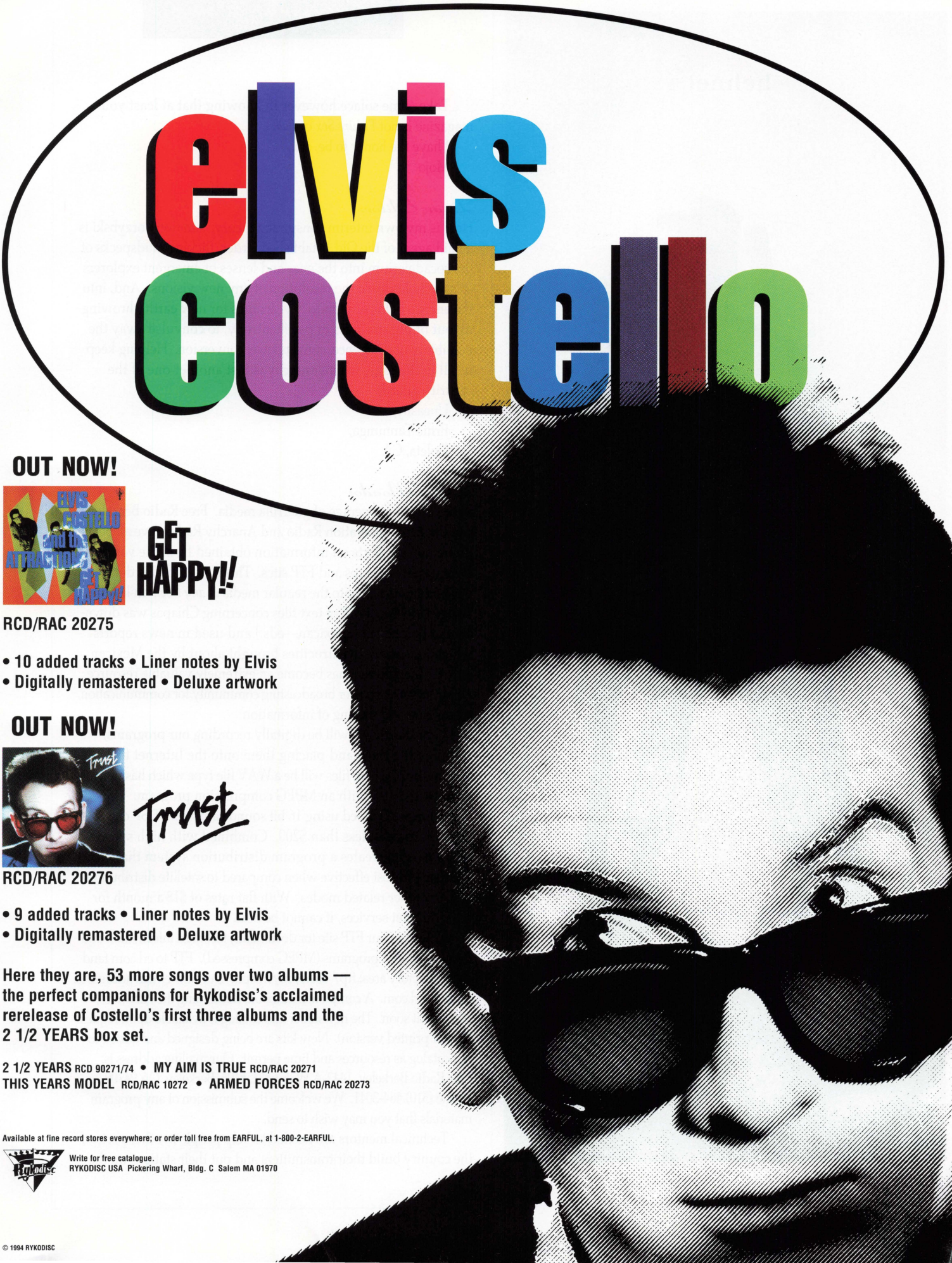
Perhaps the fact that issue 11's cover is stained with the infernal countinance *(sic)* of Cintra Wilson; a living testement *(sic!)* to the rapidly decreasing standards in the already vague and specious arena of "Alternative Theatre."

Revelation #2: It is now clear to me that certain types of folk should be kept away from computers. The letters pages; peppered with incoherent email excretions from clearly troubled minds drives home my first point. Clearly closer to a lonely hearts section than a forum of critical-minded readers, these missives read more like yearbook scrawlings than thoughtful correspondences. Clearly, the wrong people are having children. I am afraid even that this letter is way too mature and logical to pass muster in your editorial morass.

Worry not, I say, about the government, finances, media, religion and social interactions. Soon, very soon, level-headed, sangfroid, logical-minded individuals (like myself) will emerge from the shadows and spread reason and calm across the minds of the enlightened and willing. Aesthetics will replace theology as the basis of ethics. Clarity and right-mindedness shall replace discontented maladjustment as a vital sociological praxis. No need for a new world order...the old order will do.

For now though, I think I will purchase a computer. A dual-pentium 2-gigabyte monstrous arrangement and become the drunk driver of the information superhighway.

elvis costello



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Take some solace however in knowing that at least your magazine is not *Future Sex* or *Fad*.

I have the honor to be, etc.,
Mojo

Dear Editor:

Here is my own interim conspiracy theory: Xandor Korzybski is a paid agent of the Old Established Order, flicking mudspecks of provocadelerium into the eyes and lenses of emergent explorers so as to hold down the resolution of any new visions. And, into the energy fields of vibratory yearnings for new earth, throwing up out of phase waves of psychentropy, to convulse away the possibility of coherence, convergence, conversion. Helping keep us all in the cage, where anarchy is just another one of the security guards.

Uneasily,
Ernie Tannimga,
Goleta, CA

Dear Mondo:

Thanks for the coverage of guerrilla media. Free Radio Berkeley, San Francisco Liberation Radio and Anarchy Radio have all been doing news reports on information obtained from the various Internet news groups and FTP sites. This is news that is definitely not finding its way into the regular media *at any level*. In less than 10 days, close to 1 MB of text files concerning Chiapas was downloaded [soc.culture.mexican—eds.] and used in news reports which told about the atrocities brought about by the Mexican Army. The Internet has become an extremely valuable resource within the micro power broadcasting community for communication, organizing and sharing of information.

Very shortly we will be digitally recording our programs, compressing them and placing them onto the Internet for distribution. These files will be a WAV file type which has been compressed 10:1 with an MPEG compression program. Our operation is PC based using 16 bit sound cards with DSP chips. These cards cost less than $200. Combined with high speed modems, this creates a program distribution system that is efficient and cost effective when compared to satellite distribution and any other related modes. With flat rates of $18 a month for basic Internet services, it cannot be beat.

Check out our FTP site for documents, technical information and digital recorded programs (MPEG compressed). FTP to crl.com fand go to directory area: ftp/ users/ro/frbspd. Our new e-mail address is: frbspd@crl.com. A complete handbook, Reclaiming the Airwaves, will be out soon. The newsletter and catalog is available upon request (Net or printed version). New kits are being designed and added to our catalog as resources and time permit. Our mailing address is: Free Radio Berkeley, 1442-A Walnut St. #406, Berkeley, CA 94709. Phone (510) 464-3041. We welcome the submission of any program materials that you may wish to send.

Technical mentors are needed to help people in other parts of the country build their transmitters and put their stations on the

air. If you have the requisite technical capability and would like to volunteer in this capacity, please contact us. Donations of equipment, money, etc. are gratefully accepted. Let a Thousand Transmitters Bloom!

Stephen Dunifer, Free Radio Berkeley
Berkeley, CA

Dear Mondo:

When oh when are you going to get away from putting fashion pieces on the cover? M2 is so finely produced what with glossy fractals and digi-cut-and-paste, so why turn it into *Vogue* ? How about some features that us humble beings in Europe and the rest of the world can relate to, too? Like, does MindVox have a European feed? How about producing diskette versions—and not just PC/Mac, remember the Amiga anyone ?? How about a feature on e-journals (*Living Poets* is the one I edit, inquire within) or digital artists?

I buy M2 because of the potential for good informative and artistic content—at the moment plenty of it is *just* potential!

Regards,
$EAN

Mondo:

My name is RiffRaff. You may call me Riff.
M2k is a pretty new thing to me.

Cyberpunk isn't.

I'm an Art student. Mostly sculpture and appropriational collages. (Appropriation. Good word. I never knew what to call it before.)

I'm a computer/ multimedia freak. (I had my brain implanted in Hypercard as soon as it was on the market. I may be teaching a class this summer.)

I read Gibson before he was *really* popular.

I was a cyberpunk before anyone knew what one was. (My full title is "Neo-Beatnik Cyberpunk Surrealoterrorist Discordian High Priest")

When I first saw M2k, I thought "Hot damn, I'm not a Martian after all. There really are other people like me."

(I almost tiebed *(sic)* when I saw that interview with Paul Mavrides. Yeah, yeah, the Church of the SubGenius is evil, "Bob" is a tool of Grayface. Doesn't mean I can't like *individual* SubGenii. I like some Christians, too.)

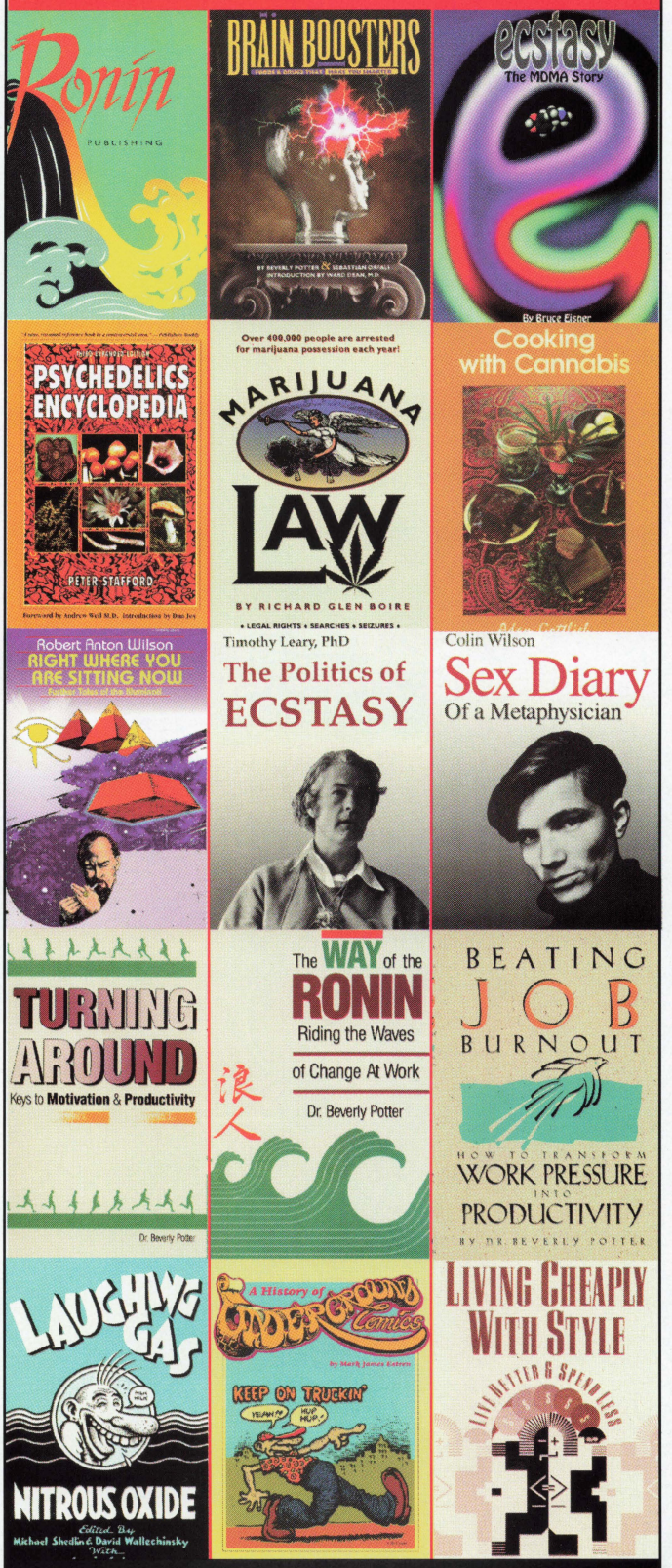
Mondo is great. I mean that sincerely. But dammit, you guys have created a major problem. You're a wannabe window.

Am I alone when I say "I don't have my capslock key set to rAnDoM"?

When I proclaim "I will never use the word 'dude,' and even if forced at gunpoint, I will *never* spell it with zeros"? (St. J00de? Do you consider that an insult?)
When I shout "Billy Idol's album has about as much relation to Cyberpunk as I have to the British royal family" (read: none)?

When I mention that I would rather gouge my eyes out with raw wooden spikes than listen to hip-hop? And scream in

Books for Cyberians



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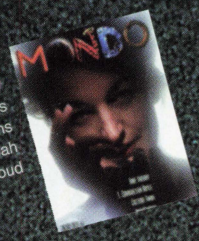

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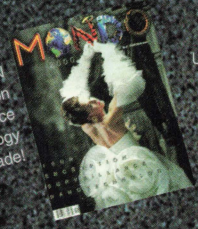

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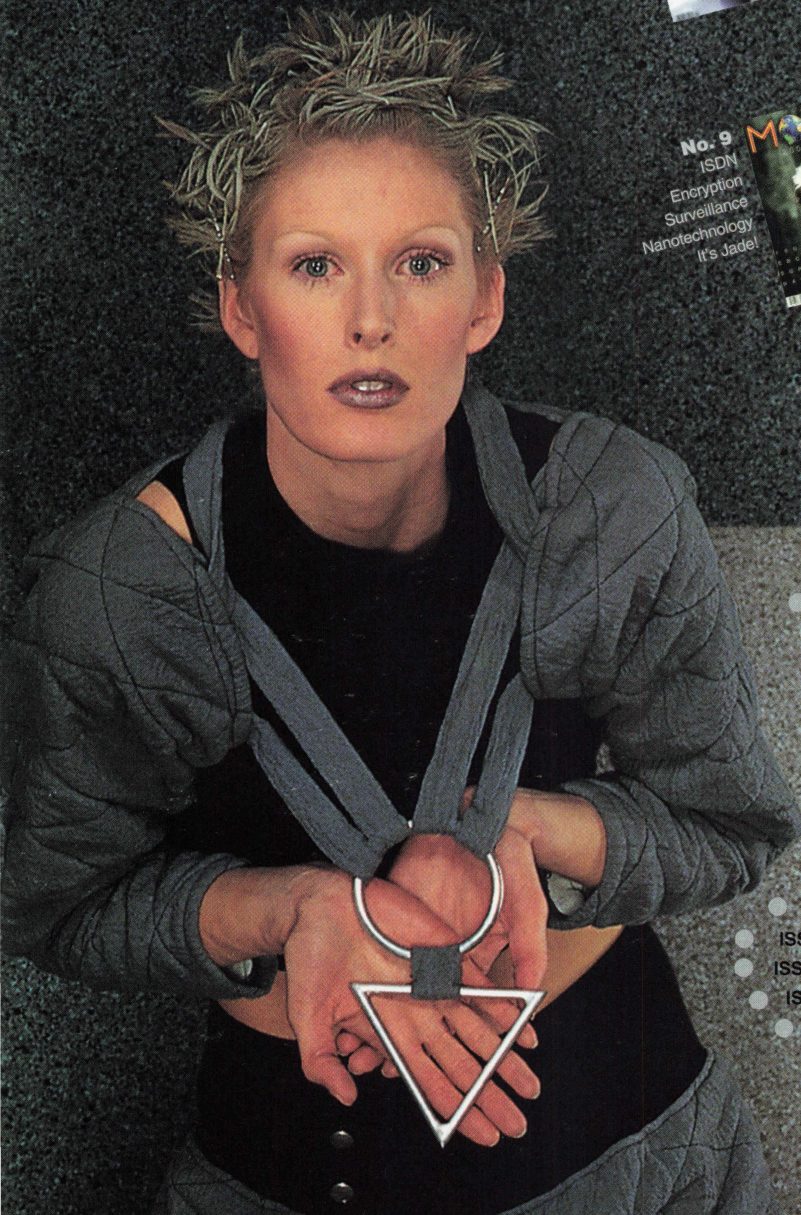

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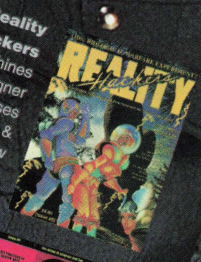

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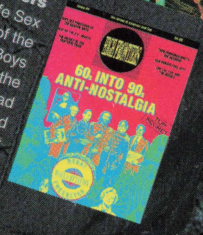

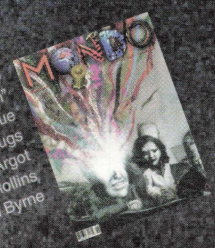

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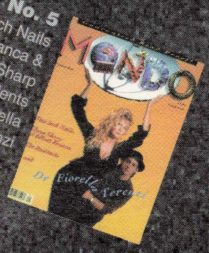

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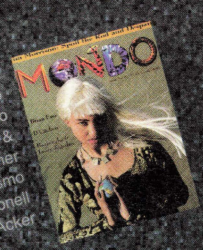

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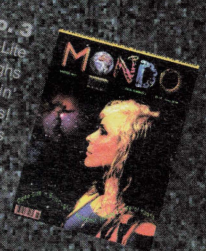

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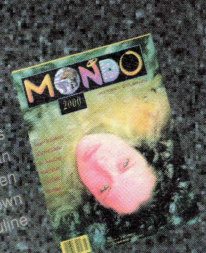
Screamin'
Memes!
Feral Moans
Hackers &
Crackers



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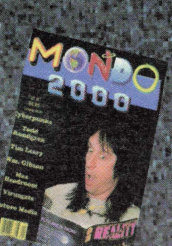

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The Alpha

12

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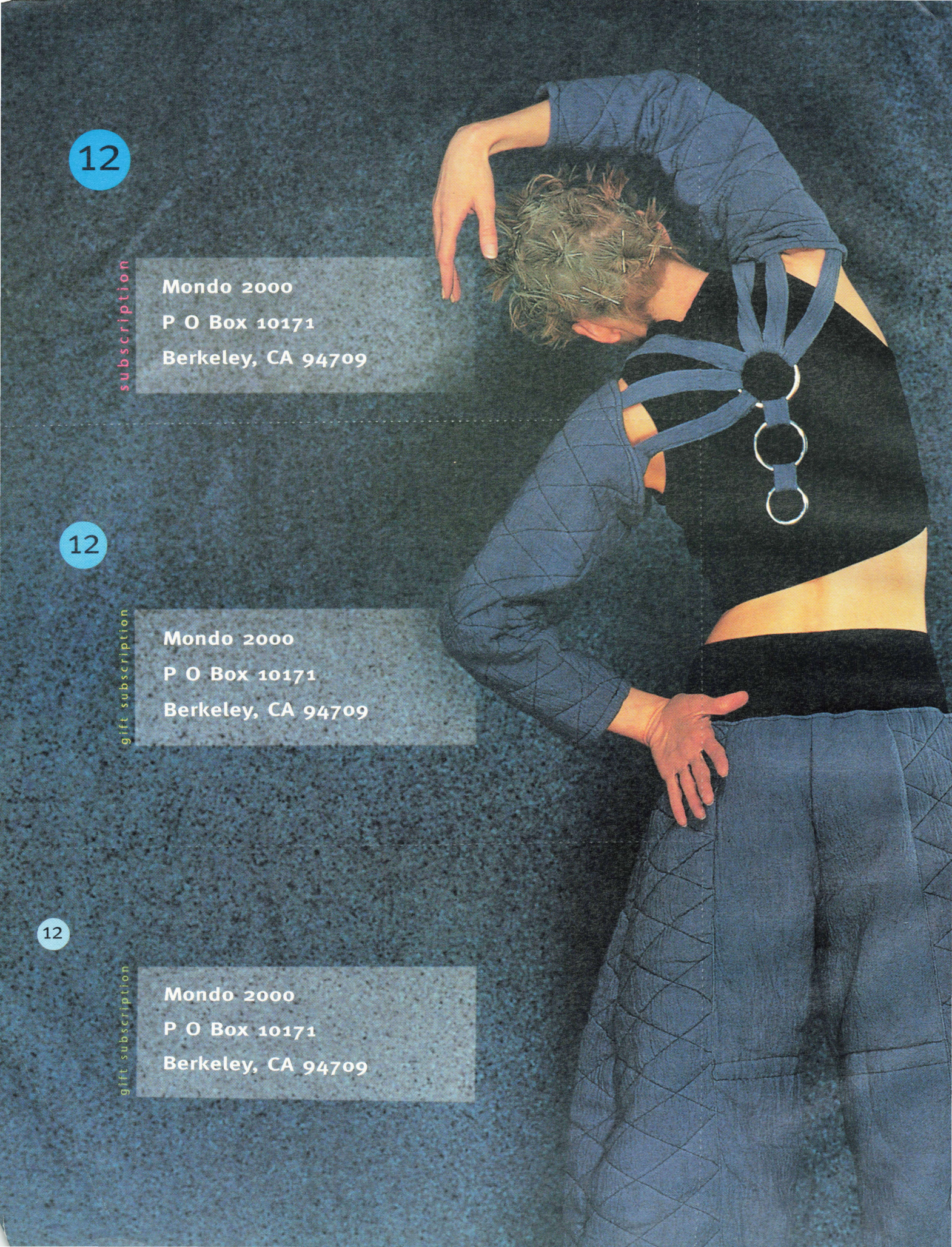
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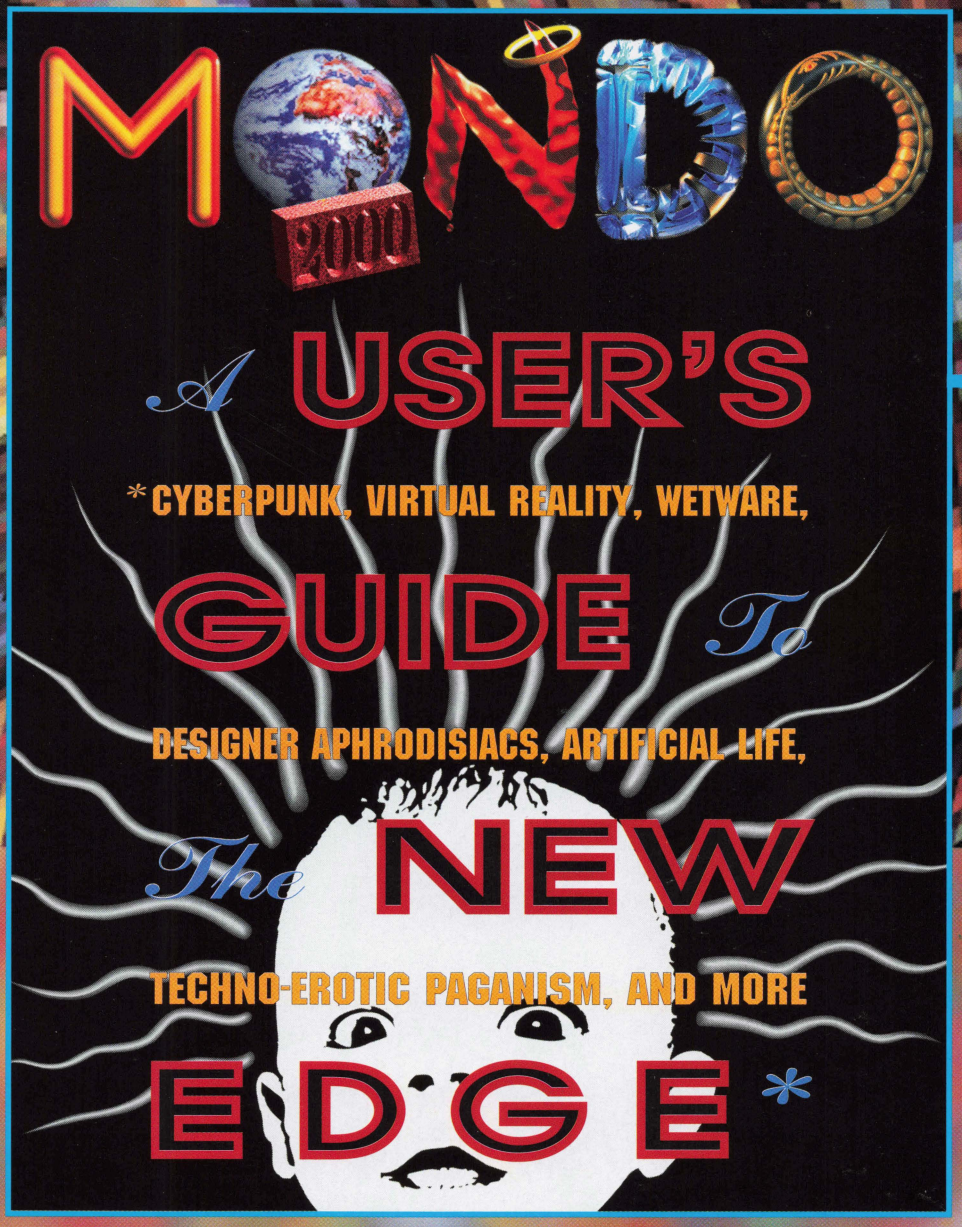

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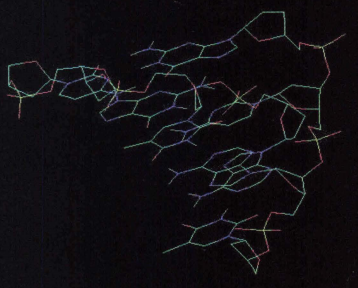
The Six Million Dollar Amoeba

NANOCYBORGS

By Wes Thomas



Imagine a new breed of humans, sleek and invincible, with the equivalent of multiple Crays built into their heads. The ultimate transhuman, who can choose the design, form, and substance of his/her own body.

We're talking cybernetic enhancements—way beyond today's mechanical implants. Within five years, there will be micromachines that connect directly to any body tissue, even the brain. We'll fuse with our technology in a sort of strange symbiosis. Shades of Robocop, Blade Runner, and Six Million Dollar Man.

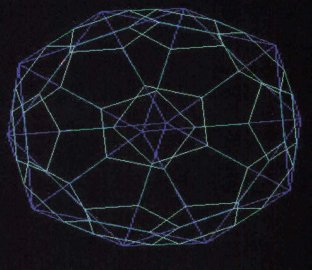
But micromachines are constrained by the top-down approach: taking existing technology and miniaturizing it. There's a limit how far down you can go.

Nanomachine development and molecular construction transcend this limit. Nanotech builds from the bottom up—assembling molecules into exquisite machine-like components. Eventually, we'll see nano-sized biocompatible molecular computers. Welcome to the coming nanorevolution.

In Prozac Nation, who could resist the temptation of mood-altering bioware? Who would want to? Why mess around with chemical drugs at all? Injectable nanosystems, linking human nerve tissue to molecular computers—the ultimate machine/human symbiosis. Self-regulated ecstasy. Dial-an-orgasm. The elimination of disease. Even eternal life.

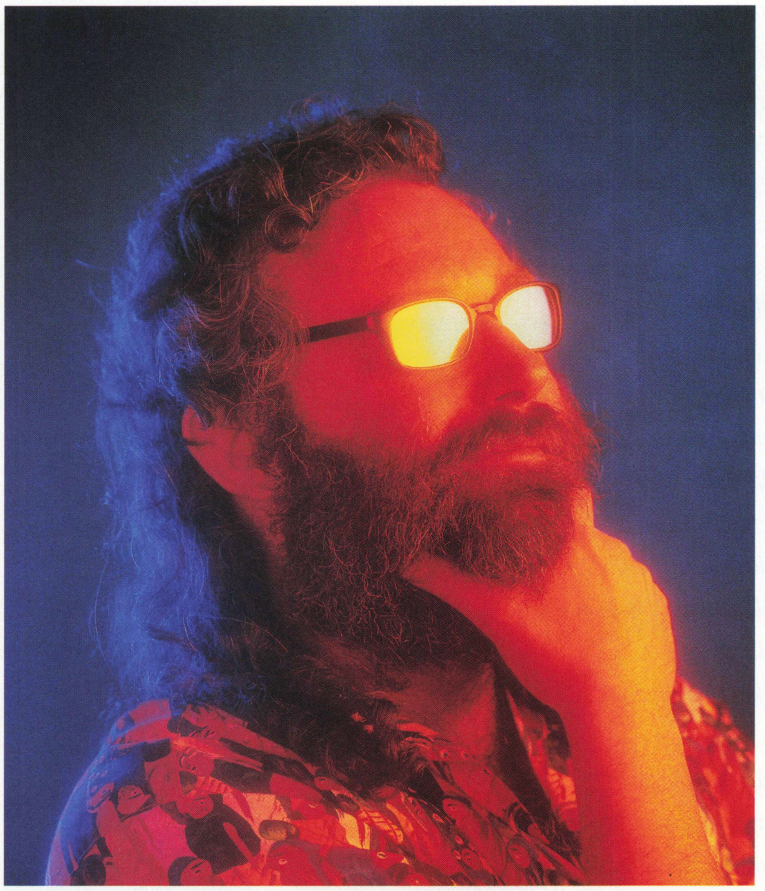
But who will decide which of the 20 billion or so people get access to this ultimate alchemy? Are we ready for total Homo sapiens triage? And what genocidal twisted Dr. Mengele of the future will emerge to create ghastly nanogenetic mutations in his/her desktop nanofoundry and hatch the nanoÜbermensch?

Illustrations by Michelle Gold



To find out what heady schemes these nanorevolutionaries are up to, I visited Charles Ostman recently at his Berkeley hillside lair. Charles is the archetypical midnight engineer, surrounded by purring hardware and abandoned pizza boxes that may well be cultures for some exotic new lifeforms.

He was the designer (with Dr. Scott Davis at U.C. Berkeley) of a "synaptic simulator" optical correlator—a hot-rodded neural network. With Dr. Dave Johnson of Tini Metals, he pioneered the use of nitinol shape-changing metals in prosthetic medical devices. Currently, he's a consultant to Nanothinc of San Francisco where he's conjuring up computer graphics software to visualize Buckyballs and future nanostructures.



When he talks about nanotech, Charles' eyes light up and leap around. This guy is like seriously crazed. So what is he? Bugle boy for the lifesaving nanite brigade or crazed trumpeter of the Apocalypse? You be the judge.

Photograph by Bart Nagel

Computer Renderings by Charles Ostman

X-Ray Body Illustration by James Stimson

1) Cochlear implant snakes inside cochlea, connecting with auditory nerve to enhance hearing.

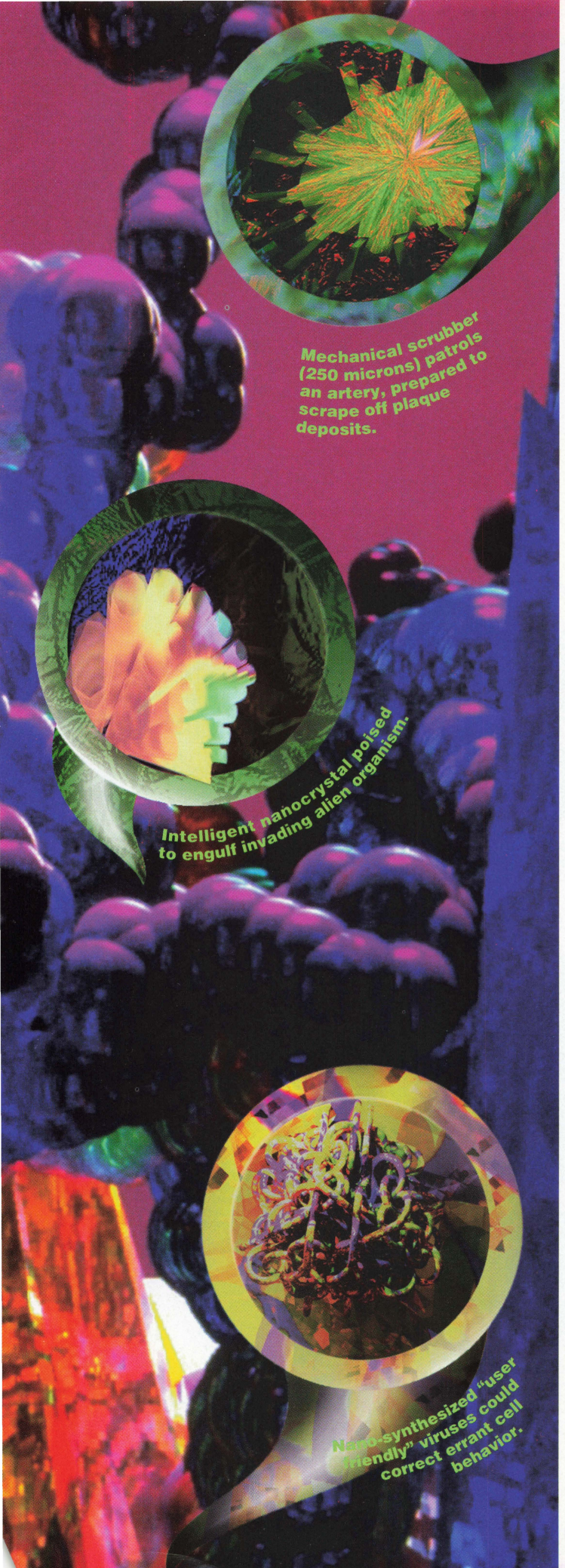
2) Implantable micro-sensors measure strain on tendons and ligaments to redistribute muscle loads and prevent strain.

3) Intelligent chemical-sensing micromachines deliver precise dosages of drugs.

4) Nanite attack squads mark invading cells for attack by other nanite components.

5) Sperm electrocution device in seminal vesicle zaps sperm upon ejaculation for birth control.

6) Deposited on a surface, shape-changing alloys perform kinetic tasks similar to muscle tissue.


Mechanical scrubber (250 microns) patrols an artery, prepared to scrape off plaque deposits.
Intelligent nanocrystal poised to engulf invading alien organism.
Nano-synthesized "user friendly" viruses could correct errant cell behavior.

MONDO 2000: OK, Charles, let me get this straight: you believe a nanotechnology revolution is coming in the near future that will fundamentally change life on earth *as we know it.*

CO: Well, what I really said was that micromachines and molecular construction will affect virtually every aspect of current-day technology. I mean from molecular scale supercomputers to self-assembling materials.

M2: What's the most exciting frontier at this moment?

CO: I'd say that lies in potential modifications made directly to the human body. This will be a major change in fundamental engineering. It will involve computer scientists, physicists, chemists and biotech engineers working in concert. Their roles will completely change. This is a huge all-encompassing thing.

M2: OK, what's available right now?

CO: R&D labs have already created a variety of microcomponents ranging in size from 50 to 300 microns [*a micron is a millionth of a meter—eds.*]. We're talking about gears, motors, valves, pumps, sensors, mechanical actuators, propulsion devices, microelectronic circuitry (even microcomputers), and power supply components. These components can be constructed into microassemblies that can be injected or implanted in your body to do various repair and maintenance jobs.

M2: What stage of development are they at?

CO: Electronic pacemakers, other implants, and miniature prosthetic devices have been standard medical procedure for years. Ultraminiature cochlear ear implants allow thousands of deaf people to hear for the first time. Injectable blood gas monitoring sensors are now available. In physical therapy, implantable micro strain gauges and related circuitry now allow real time tension measurements in tendons and ligaments. We really are converging on the bionic man idea.

The **University of Tronheim** in Norway and the **V.A. Islet Transplant Center** in Los Angeles have co-developed the world's first implantable micromachine insulin-dispensing devices. Things like this could be used to keep a constant amount of other drugs in your body as well. And the applications of micromachines in general are wide open. There's even **Neue Technologien**, a German electronics manufacturer that has invented a seminal duct implant designed to electrocute sperm before they leave the body. A current activated by the flow of seminal fluid shocks the sperm into sterility. They're looking for volunteers to test it, by the way.

M2: Ouch! I'll pass. So what's coming next?

CO: Intelligent devices that move around the body on their own accord. They'll have chemical sensors and take the appropriate action when the desired chemical stimulus is detected. These functions can include immuno and antigen sensors to mimic the action of your immune system. They may be able to chemically sense viruses or infected cells and destroy them. Or they could sense and destroy cell groups that are rapidly dividing—tumors.

M2: How small can they go?

CO: The bottom limit of miniaturization is about .1 micron. Microlithography fabrication technologies begin to fail below this point, mainly because of the "raggedness" of the micro surfaces and edges of an etched substrate.

What is needed is a new approach. Currently, micromachinery components are being produced using a "top down" manufacturing process which entails making components smaller and smaller.

Future construction will be from "bottom up" or molecular construction, atom by atom. This is where the true nanorevolution begins. A nanomachine will occupy a relative volume of one billionth the size of that occupied by a current micromachine of equivalent functionality.

M2: What could be done with this nanotech approach?

CO: Since molecules with specific reaction sites can be synthesized, virtually any biochemical task in the body could be accomplished. These "nanites" could even be designed to chemically communicate with each other and respond to cues in the body. They will also be designed to assemble into different groups to perform various physiological functions. For example, a group at **MIT** has successfully created self-replicating molecular structures in a molecular soup. They start out with a series of compounds where a set of larger molecules actually forms smaller pieces into identical molecules. These are very simple molecular structures but nanotechnologists are planning to create much larger complex molecular assemblies in the near future.

M2: Wait a minute—do you mean to say that Nanocyborgs are here?!

CO: Not quite—real-world nanotech-based systems are at least 10 years away. But interim technologies are already here. Carbon atom structures called "fullerenes" (named after futurist Buckminster Fuller) have been discovered. The pioneer in fullerene research is **Dr. Richard Smalley**, a researcher from Rice University. He now provides commercial access to custom fullerenes (for about $1000 per gram). You can actually fax him the specs for a molecule and get back fullerene powder in a Fed-Ex package.

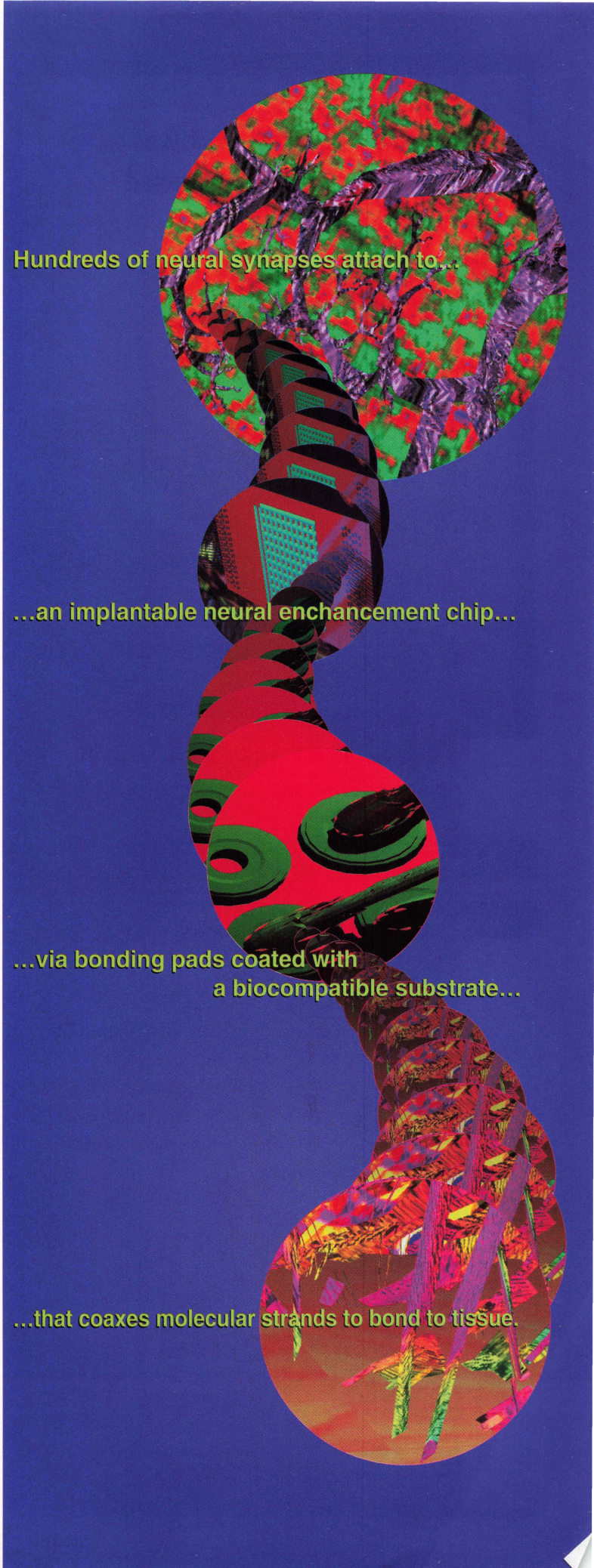
These have broad potential applications, such as the ability to surround or contain atoms of other elements. You'll deliver a specific element to a molecular site for a specific purpose.

For example, you could deliver a photonic-sensitive fullerene compound to a cancer cell cluster and then rupture it with a controlled pulse of laser light. This would release the oxygen and destroy the cancer cell.

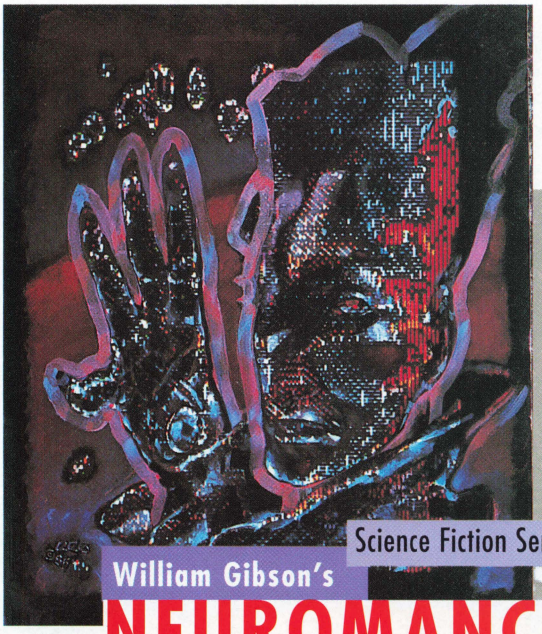
M2: How about jacking the brain into a computer?

CO: There have already been experiments in which a completely blind patient's optic nerve fibers were connected to a computer-driven dot-matrix display and he could actually see crude patterns.

Let's take it into the speculative realm of the future. Imagine what happens when molecular computing is advanced enough that you can embed a nanocomputer in the brain. By controlling the voltage-controlled sodium ion exchange process at neural synapses, you could achieve advanced sensory extensions and eventually even thinking abilities. At the atomic-dimension sizes of the nanomechanical logic components, the amount of integration you


Hundreds of neural synapses attach to...
...an implantable neural enchancement chip...
...via bonding pads coated with
a biocompatible substrate...
...that coaxes molecular strands to bond to tissue.

"The sky above the port was the color of television, tuned to a dead channel."



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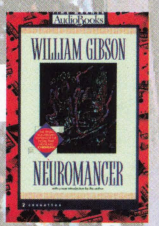

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can have in a given unit skyrockets. In the same space, you can fit a billion times more stuff than on a current microchip. We'll eventually have nanocomputers that run at teraHertz—that's up to 1000 times faster than current computers. They'll store the equivalent of terabytes of information and run on extremely minute amounts of power from the brain itself. Imagine having an array of virtual Cray computers in your head—more powerful than all the computers on the planet today combined, and all running in parallel!

M2: How many Crays could you put in your head?

CO: ...or anywhere else in the body, for that matter. Well, a nanocomputer should have the equivalent processing capability of one Cray per cubic micron. So there's really no practical limit. Power wouldn't be a problem either. Each nanocomputer would use only about 10^{-21} joules (watts/sec.), which could be powered by the body's own cellular electrochemistry. You wouldn't have to run them constantly—specific ones could be fired up for emergencies or other tasks, as required.

Plus you could have an embedded holographic optical correlator that learns automatically and that's millions of times more powerful than the existing neural networks that handle complex visual and other pattern recognition tasks. You could extend your senses to input gigabytes of data directly into the brain in real time. A potential outcome in the far future might be that you could even upload your mind into a nanocomputer system.

M2: Straight out of *Brainstorm*. So how would you interface neurons with these devices? That's a trick.

CO: First you want to get nerve cells to physically bond to circuitry so that you can interact with the neural signals. There have been some recent breakthroughs in solving the biocompatibility problem of interfacing inorganic materials (like silicon, metals, or plastics) to nerve cells. A precise photoreagent process generates "tethers" that attach themselves to the target biomolecules (peptides, enzymes, etc.). The idea is to induce specific nerve cells to actually grow onto a grid pattern...

M2: ...like a garden trellis?

CO: Yes! Once you do that, you can connect nerve cells to miniaturized signal processors and computers to monitor and control specific groups of neurons and specific brain functions or even enhance general capabilities like thinking and memory. If you want to, you can alter sensory perception, your mood, or even your state of mind.

M2: Sounds scary. There's going to be a certain critical threshold with neural enhancements, isn't there? The smart will get infinitely smarter and develop even more powerful neural and other enhancements, becoming powerful nanogeniuses, and the rest of us...

CO: Sure. Obviously not everyone will have equal access to this, especially regarding neural enhancements.

M2: Sounds like the Alphas and Epsilons of *Brave New World*. So what are some really far out applications of this stuff?

CO: In the further future we may see nanite symbiosis. Different

nanite species can interact with each other and assemble and reassemble into something else, depending on their chemical messages. Nanite components could reside anywhere or everywhere, and be able to form larger organisms as needed. Nanite "species" may form an entire society. They may be airborne (like pollen grains) and may land on or be breathed in by the human recipient. The boundary between organic and inorganic cell objects will become ever more diffuse.

M2: OK, great, so now we have what—10 to 20 years to design our anti-nano defenses before relentless ubiquitous nanites alter the very process of life itself on Earth and meddle irrevocably with our DNA?

CO: Well, at the frontiers of biotech, designer DNA is already well underway. A logical extension would be the construction of complete genomes and then of course custom organisms, including the genetic enhancement of human beings. Nanotech will make all this infinitely more efficient, because nanites could be designed to interact with genetic processes on the molecular level. If you thought Clinton's health plan was controversial, wait till nanotech hits!

M2: So who will control all this? Hopefully not the FDA, drug companies, or insurance companies.

CO: That's the key question. Nanotech even makes current economic systems obsolete. Right now, power and influence in the world are based on the control of natural and industrial resources. The coin of the realm of the future will consist of access to nanotech, which will make it possible to synthesize any physical object cheaply and easily or alter your body or anything else in an infinite variety of ways. This will be a major blow to the current power structure. And that may make nanotech very unpopular with them.

M2: Well, anything to free people from multinational corporate domination.

CO: Right, but it won't necessarily happen that way. Take the oil industry as an example. We know that automobiles can run on alcohol, which can be grown cheaply with sugar cane or corn. But the oil companies are so powerful because of their monopoly, they've influenced our government to sweep alternative energy breakthroughs under the carpet.

With molecular enhancements, what happens when people can live to 200 years or more? Who gets to have nanoimplants? How old will we be allowed to live? 500 years? 1000 years? This is extremely controversial, very scary.

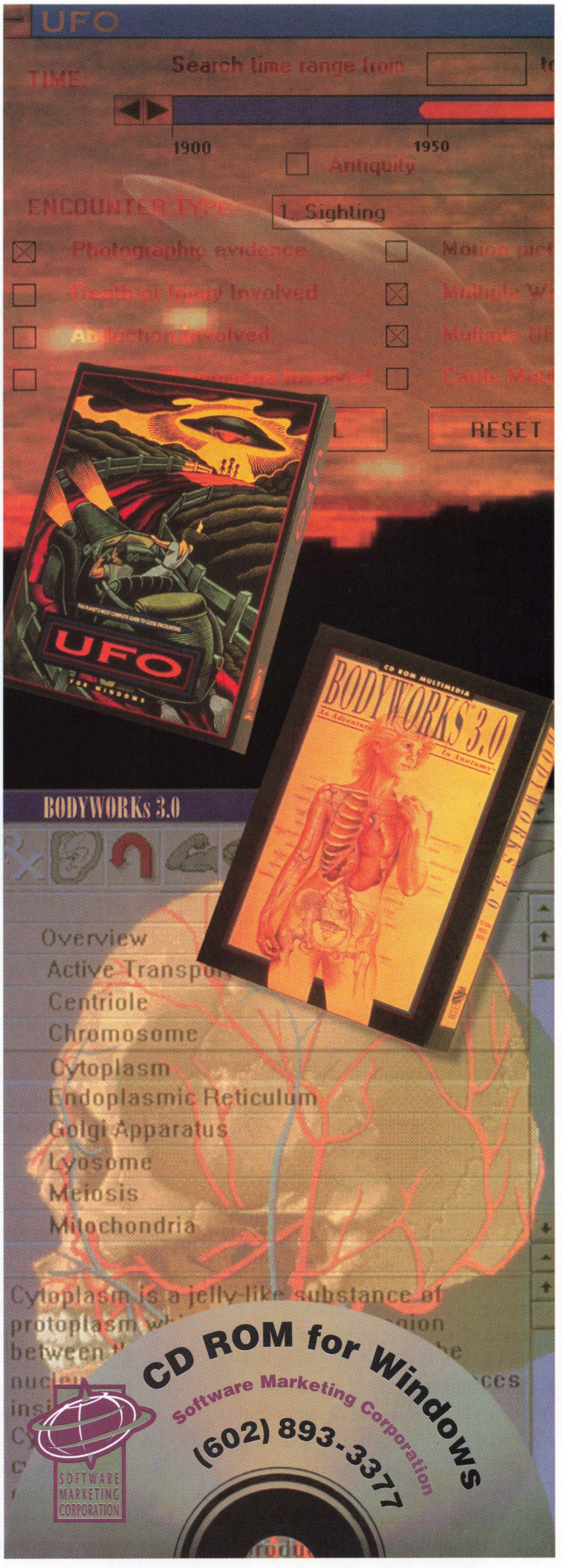
Many researchers will feel compelled to keep it all secret. They're afraid of an uninformed and emotional public suddenly encroaching on their research. It could definitely create a new élite. Or it could sink into an ever more obscure underground.

M2: Tell us the scary stuff!

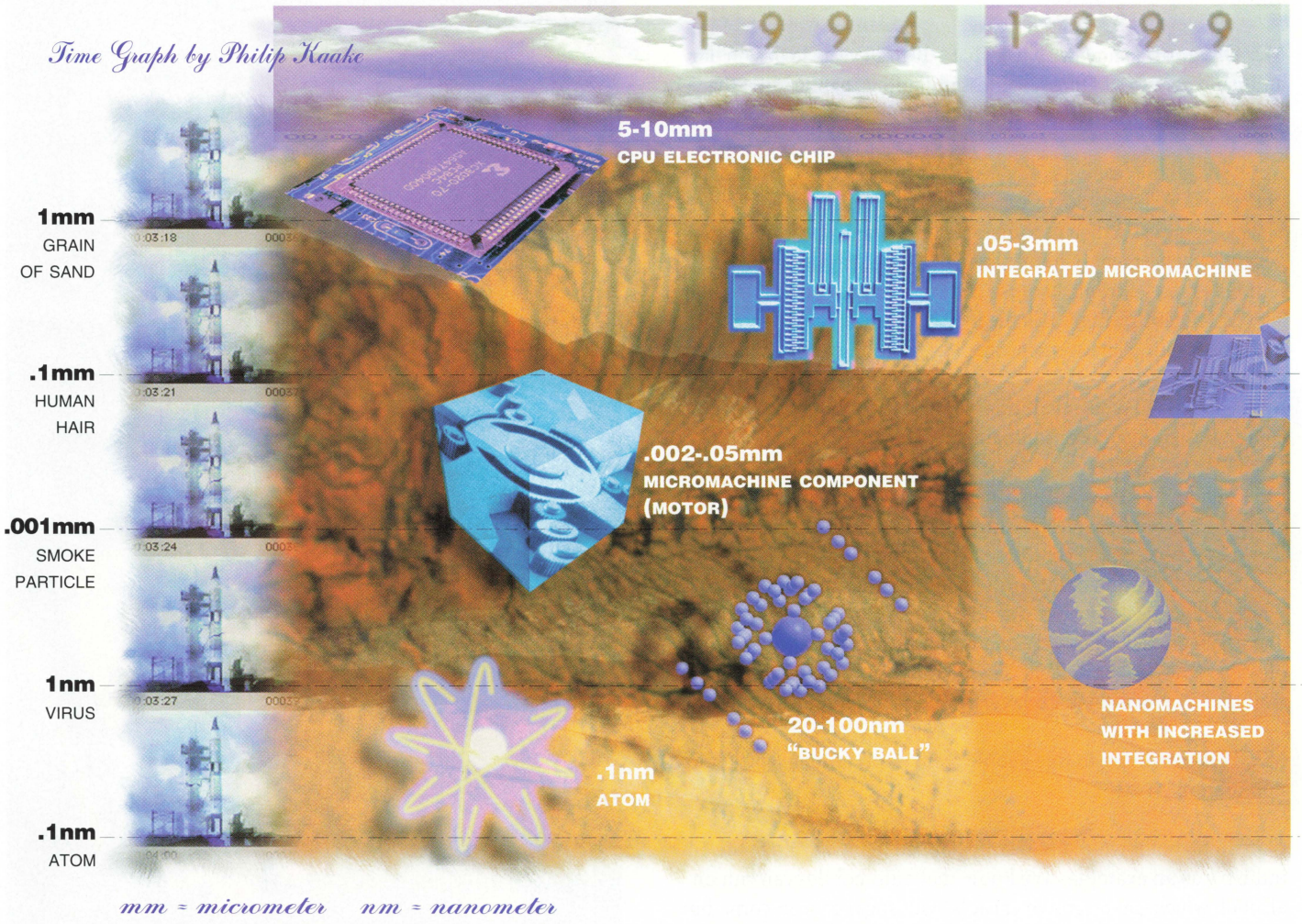
CO: You mean nanotech black markets, international nanoterrorists, nanite aerosol warfare...

M2: Yes, *all* that stuff!

CO: Oh, I'm afraid that's just where I'm non-disclosed. M2



TOOLING UP FOR THE NANO-



The micromachine industry is zooming. Frost & Sullivan has forecasted worldwide revenues of over $1 billion for 1993 and $3 billion by 1998. The industry is already equipped to start fabrication of micromechanical chips. Existing microlithography techniques for etching silicon wafers can be used to etch out single-piece micromechanical components such as tweezers, grippers, and vibrating vanes from silicon. Now it's just a question of market demand and economics.

A key issue in this development process is establishing a library of microcomponents. A microcybernetic device designer could have access to these to construct a complete self-contained micromachine system.

The already-existing realm of microscale electrochemical biosensors is diverse. It is rapidly expanding to include ion- and enzyme-selective components and immunosensor devices that can allow an intelligent machine to respond to a particular chemical event stimulus. For instance, a new class of chemically sensitive transistors, chemFETs (chemically stimulated field effect transistors), are already commercially available. And microsensor devices capable of detecting extremely small fluctuations in pressure, flow rate, photonic stimulation, and temperature are standard components for today's micromachine designers.

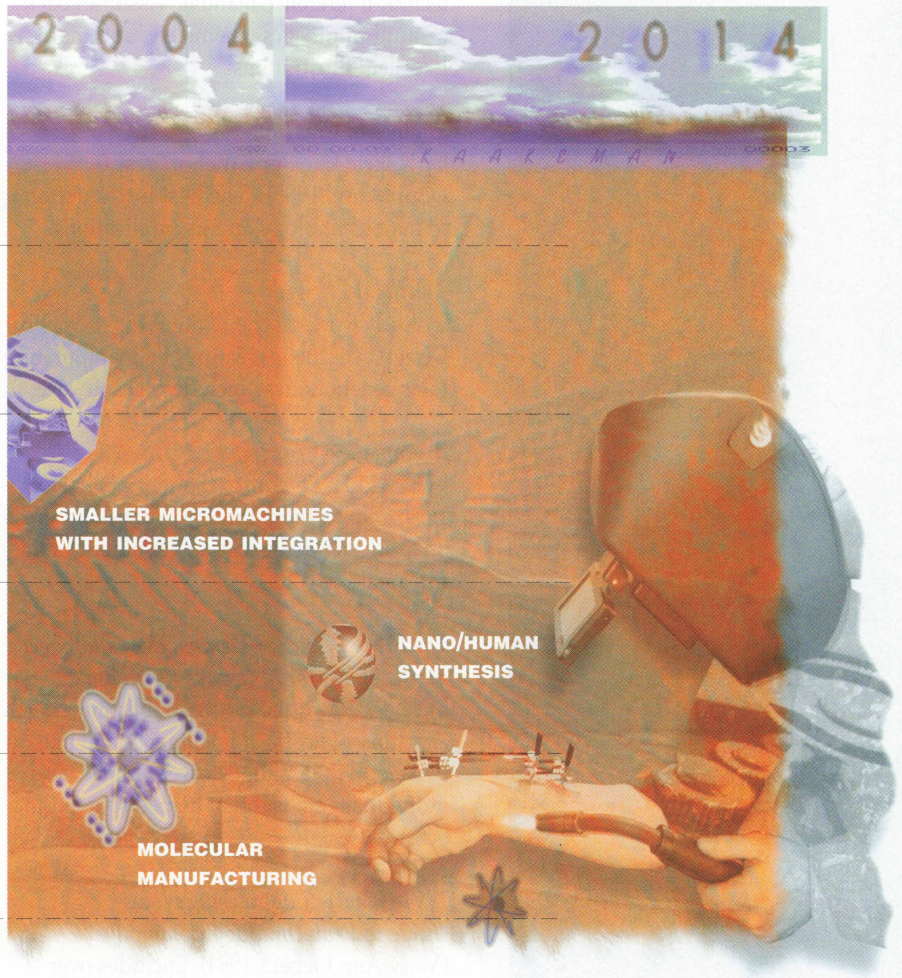
Existing chip manufacturing facilities already make all this feasible. Substrate foundry and lithographic fabrication equipment, which are currently used for producing integrated circuits, can be used to develop mask patterns for microcomponents and as microfabrication systems for mass production of complex microassemblies.

Dukane of St. Charles, IL has developed microrobotic assembly systems capable of resolving repeatable motion paths to .1 micron over a total work area envelope of 115 x 50 x 50 mm. These can handle and assemble microcomponents. Researchers at the **Centre d'Elaboration des Materiaux et d'Etudes Structurales** in France have succeeded in producing an incredible array of gold conductors under 50 nm wide and 15 nm thick, embedded in a silicon substrate. Electrical conductors at this scale allow for creating ultraminiaturized 3-D electronic circuits and are potential connector sites for neural fiber attachment.

Intelligent membranes and gels are being developed that can change size or molecular porosity based on chemical, pH, electrical, or

REVOLUTION

BY CHARLES OSTMAN



thermal stimulus. Responding to very minute fluctuations in applied current, these membranes can be programmed to allow for an entire range of molecular porosities with the same piece of gel.

This process not only provides an excellent mechanism for acquiring a very specific chemical sample (such as oxygen level) for measuring, but more importantly, can also serve as a molecular dispensing system for delivery of drugs, or any other type of chemical compound. Microscale gel fibers have also demonstrated substantial programmable volume displacement and kinetic properties. For instance, gel fibers 1 micron thick have been successfully fabricated. These can shrink down to 4% of their original volume in less than 1 millisecond when triggered by an electrochemical reaction. This type of property lets them serve as components for valves or propulsion devices.

Taking it into the nanotech realm, Japan's Ministry of International Trade and Industry (MITI) launched the ten-year, $200 million Atom Technology Project in 1991 to develop new atomic structures and ultra high vacuum chambers. Other researchers like Xerox Parc are already conceiving nanotech solutions for medical problems. In the future, molecular constructions consisting of hundreds or thousands of atoms per component can be assembled and reassembled to fulfill an almost infinite variety of molecular-scale construction tasks. It will be a sort of molecular Lego set that will allow us to build new compounds and reconstruct the biochemical components of life itself. M2

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NANOHACKING

DIY

by Wes Thomas

The best place to start is Eric Drexler's *Nanosystems* and *Nanotechnology—Research and Perspectives*, edited by Crandall and Louis. Another good source is San Francisco's **Nanothinc**—"a privately-held company that includes nanotech scientists, physicists and computer experts."

Nanothinc is developing a "nanoscale activities-related database" accessible via the Internet. They plan to offer an info services product line and a series of "nanotainment" and educational software, publications, and experimenter kits (*info@nanothinc.com* or 800-NANOWORLD, fax 415-202-9975). They are also acting as an incubator via their *Nanoventures* division to promote tech transfer and seed capital.

Nanobox, the company's first kit, due out by Summer, is an entertainment/nanochemistry set complete with vials of fullerene powders, chromatographic columns for analysis, PC software to view and manipulate fullerene molecules in 3D (with 3D glasses), and an introductory manual. A future product will let you design your own molecules and will read standard CAD file formats.

Nanothinc is also developing an online molecular modelling service. You'll upload your molecular description (via the Internet) and get back a valid molecular construction (minimum energy coördinates of the atoms) that you can then load into your Nanobox software to visualize. Perhaps in the future, they'll link you up with a nanofactory that can take the actual molecular material you've designed and kerchunk it into the real world.

Charles Ostman believes the most promising future is linking nanotech and biotech, creating "quasi-viral nano-organisms that would seek out a cell's internal RNA and make changes. For example, they could trick patrolling lymphocytes into attacking cancer cells or repairing broken DNA. This means we could intervene in diseases that have a genetic foundation. We might even address the aging process itself."

Greg Bear's science fiction classic "Blood Music" takes this idea to the extreme: researcher creates self-replicating nucleoprotein-computer nanites programmed for autonomous heuristic learning to optimize immune defenses. He uses some of his own white blood cells to culture these nanites and injects them into his body. After a few million generations (a day or so), he becomes superimmune. Then the nanites cross his blood/brain barrier, learn about the real world, and decide to venture out on their own. He and his colleagues become cells in *their* fast-evolving metaorganism, programmed to take over all life forms. Whoops!

Resources

BOOKS

Nanosystems—Molecular Machinery, Manufacturing, and Computation
by K. Eric Drexler (John Wiley, 1992). *The* technical reference manual. Assumes background in physics, chemistry, and math. Excellent illustrations.

Engines of Creation
by K. Eric Drexler (AnchorPress/Doubleday, 1986). The best introduction to nanotechnology and its implications.

Artificial Life Lab
by Rudy Rucker (The Waite Press, 1993, PB). Design cybernetic creatures by manipulating their genetic codes. Includes 3D software.

Brainmakers
by David H. Freedman (Simon & Schuster, 1994). Up-to-the-minute account of progress on artificial intelligence and synthetic brain research.

The Brain Makers—Genius, Ego, and Greed in the Quest for Machines that Think
by H. P. Newquist (SAMS Publishing, 1994). A history of artificial intelligence and the twisted psyches, huge power brokers, and individual geniuses that helped spawn the beast.

1994 Genetic Engineering News Guide to Biotechnology Companies
(Mary Ann Liebert, 1994). Includes over 1300 companies. Available as desktop book and PC disk.

Elemental Mind
by physicist Nick Herbert (Dutton, 1993, PB). Quantum mechanics of the mind, model of mind/body system as information channel, quantum-reality receivers, quantum synaptic tunneling, and other trippy explorations.

Metaman—The Merging of Humans and Machines into a Global Superorganism
by Gregory Stock (Simon and Schuster, 1993). Humanity and technology (genetic engineering, medical equipment, drugs, superhighways, artificial intelligence, and communication networks) merge into a hybrid being called "Metaman."

compiled by Louis Santiago

Mind Children—The Future of Robot and Human Intelligence
by Hans Moravec (Harvard University Press, 1988, PB). Describes a postbiological world in which artificial life will control its own development. Nanotechnology, electronics, computers, genetics, robotics, other delights.

Muscle Wires—Project Book
by Roger G. Gilbertson (Mondotronics, Inc., 1992, PB). (415) 455-9330, fax (415) 455-9333, Order line 800-374-5764, e-mail *mondo@holonet.net*. How to design and build dozens of "robotic muscles"—nickel titanium filaments that contract when electrically stimulated and can lift thousands of times their own weight.

Nanotechnology—Research and Perspectives
edited by B.C. Crandall and James Louis (MIT Press, 1992). Self-assembling molecular systems, molecular electronics, other nano-applications and implications.

Neurobiology of Cognition
edited by Peter D. Eimas and Albert M. Galaburda (MIT Press, 1990). This special issue of ***Cognition*** contains six articles on neurobiological explanations of behavioral processes.

Neurons and Networks
by John E. Dowling (Harvard University Press, 1993). Detailed survey of current neurophysiology and brain chemistry.

Prospects in Nanotechnology—Toward Molecular Manufactoring
edited by Markus Krummenacker and James Lewis, John Wiley, 1994). Applications of nanotechnology in computer design, materials engineering and biochemistry. Foreword by Eric Drexler.

Sensory Processing in the Brain—An Exercise in Neuroconnective Modeling
by Dean E. Wooldridge (John Wiley, 1979). Modeling Connections.

ZINES/CATALOGS

Biomedical Products
Gordon Publishing, P.O. Box 650, Morris Plains, NJ 07950-9809. (201) 292-5100, fax (201) 898-9281. Monthly publication on tools and techniques for life science researchers.

Biotech Buyers' Guide 1994
American Chemical Society, 1155 16th St. NW, Suite 604, Washington DC, 20036. (202) 872-6316. Reference guide to the biotech marketplace. Over 1800 listings of suppliers, instruments, equipment, biologicals and publications.

Genetic Engineering News
Mary Ann Liebert, Inc. New York. (212) 289-2300, fax (212) 289-4697. Covers biotechnology, bioregulation, bioprocess and bioresearch.

NanoNews
Superconductivity Publications, 710 Eastern Ave., Suite C, Somerset, NJ 08873-1855. (908) 846-2002, fax (908)846-2050.

Sensors 1994 Buyer's Guide
Helmers Publishing, 174 Concord St., P.O. Box 874, Peterborough, NH 03458-0874. (603) 924-9631, fax (603) 924-7408. Detailed listings of 1436 companies in the sensor industry, by the publisher of *Sensors, The Journal of Machine Perception.*

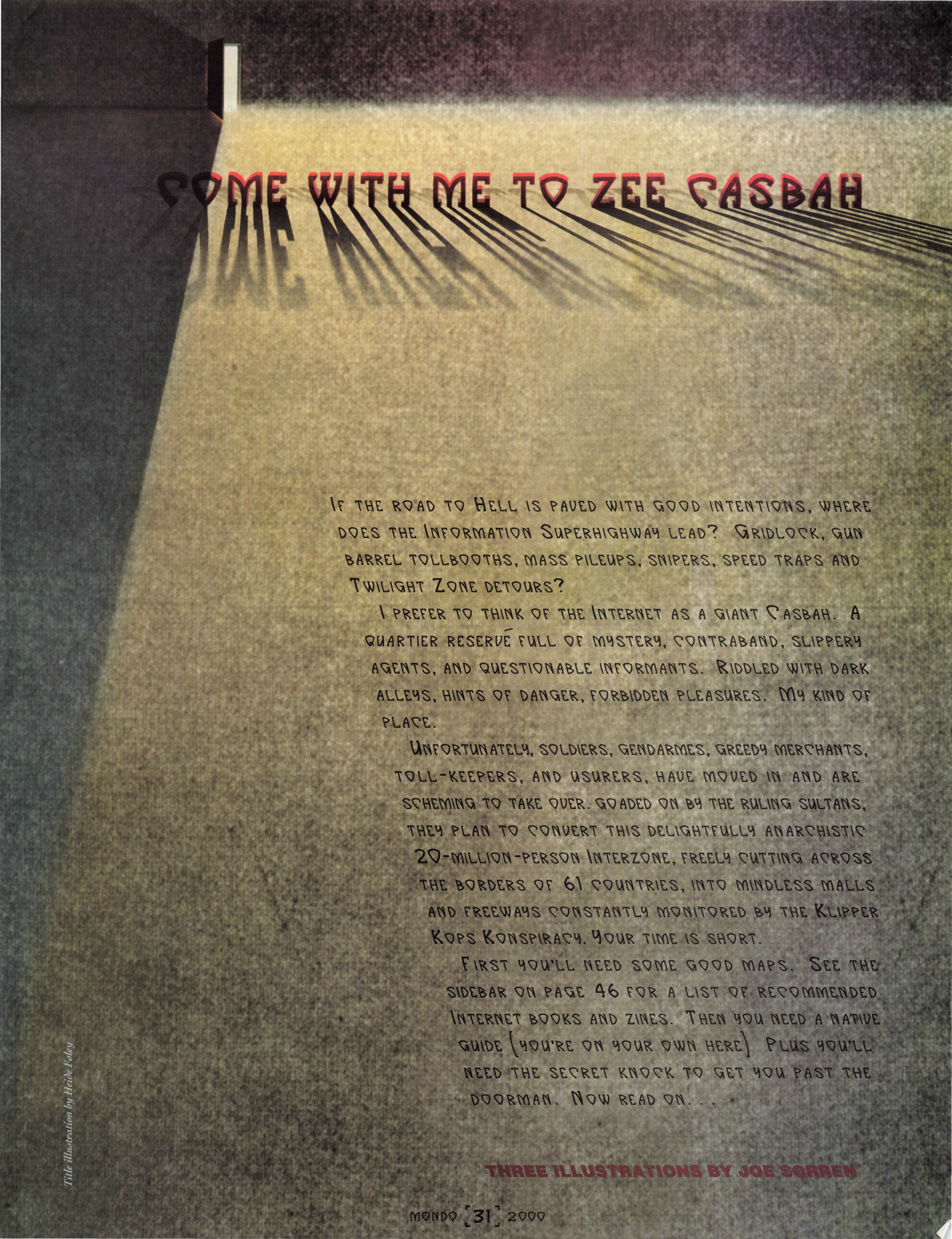
ORGANIZATIONS *(a sampling)*

Foresight Institute, (415) 917-1122, fax (415) 917-1123, e-mail *foresight@cup.portal.com*, P.O. Box 61058, Palo Alto, CA 94306. K. Eric Drexler's own organization aims to "chart a safe path through the potential upheavals and reap the benefits of nanotechnology." They are interested in open discussion of the powerful implications of the technology.

Frost & Sullivan, 2525 Charleston Rd., Mountain View, CA 94043, (415) 961-9000, (415) 961-9000, fax (415) 961-5042. Tech-minded market research firm with latest info on R&D funding.

The Gartner Group, 56 Top Gallant Road, P.O. Box 10212, Stamford, CT 06904-2212. (203) 964-0096. Computer technology information/development group focusing on advanced technologies, including super-computers, artificial intelligence, etc.

Nanothinc, 1797 Union St., San Francisco, CA 94123. (415) 202-9969, 1-800-NANOWORLD, fax (415) 202-9975, e-mail *info@nanothinc.com.* Offers information, education/entertainment products and services, and venture capital investment services. M2



COME WITH ME TO ZEE CASBAH

If the road to Hell is paved with good intentions, where does the Information Superhighway lead? Gridlock, gun barrel tollbooths, mass pileups, snipers, speed traps and Twilight Zone detours?

I prefer to think of the Internet as a giant Casbah. A quartier reservé full of mystery, contraband, slippery agents, and questionable informants. Riddled with dark alleys, hints of danger, forbidden pleasures. My kind of place.

Unfortunately, soldiers, gendarmes, greedy merchants, toll-keepers, and usurers, have moved in and are scheming to take over. Goaded on by the ruling sultans, they plan to convert this delightfully anarchistic 20-million-person Interzone, freely cutting across the borders of 61 countries, into mindless malls and freeways constantly monitored by the Klipper Kops Konspiracy. Your time is short.

First you'll need some good maps. See the sidebar on page 46 for a list of recommended Internet books and zines. Then you need a native guide (you're on your own here) Plus you'll need the secret knock to get you past the doorman. Now read on. . .

THREE ILLUSTRATIONS BY JOE SORREN

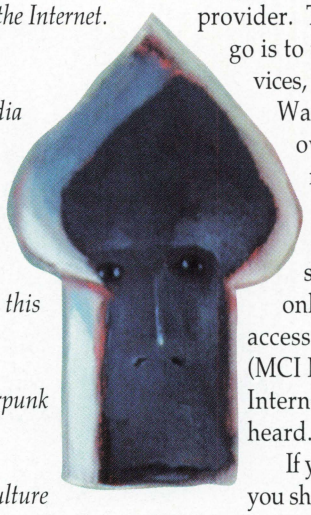
Title illustration by Heide Foley

WES THOMAS* ROAMS THE INTERNET

Beyond the hype, behind the glamour, underneath the sea of buzzwords, icons and flames, a new subculture is spreading in this petri dish known as the Internet. Here science and art, media and mind combine in a cyborg frenzy to create this replicant cousin to cyberpunk and hacking. It is a subculture with no name, few labels, but thousands of common attractors which form ideas that link together before our eyes like digital DNA to create, in the helix of the autologue, a new frontier for participants in these wide virtual spaces to explore.

—John Frost,

Cyberpoet's Guide to Virtual Culture



ACCESS ALL AREAS

Getting in the gate is easy. All you need is a personal computer with a modem (14.4 kbps recommended) and access to an Internet access provider to get started. Your best bet: finagle a free account at a local university (if you're willing to put up with their regs) or check for access at your local library.

Or pick a low-cost Internet access provider. The quick & dirty way to go is to use one of the online services, like CompuServe and AOL. Warning: some are seriously overloaded, especially some nationally advertised online services. They can also be limited in what services they provide—only Delphi and BIX give you access to all Internet services. (MCI Mail will also offer full Internet access soon, we've heard.)

If you want more direct access, you should subscribe to a national Internet Access provider. Warning: some of these are also seriously overloaded. And once in, you'll need to speak the native's strange tongue—UNIX (it's similar to DOS for the PC). You can use the comm software that comes with your modem (make sure it includes ZModem) to access everything.

But the best bet, if you have the patience and time, is to get an Internet SLIP or PPP connection. This allows you to use graphical user interface software instead of hostile UNIX commands. Check out the *Internet Starter Kit* (see below), which is available for Mac and Windows and includes software.

If you have Windows on a PC, also check out ***Pipeline***, an Internet access provider. James Gleick developed the idea for the Pipeline-to-Internet software while surfing the net researching his book, *Chaos*. Pipeline lets you access all Internet services via the Pipeline Internet access service (reasonably priced at $12/month and $2 per hour), which is currently available only in the New York area or by remote login (the service is expanding nationwide). Future versions will include Mosaic and World Wide Web interfaces and a Mac version. Phone 212-267-3636 or e-mail *info@pipeline.com*. To get the $90 software free for a demo: *gopher pipeline.com* or telnet to pipeline.com and log in as <*guest*> or have your modem dial 212-267-6432 (high speed) or 212-267-7431 (2400 baud) and log in as guest.

Internet-in-a-Box, due out in May 1994 for $99.95, promises to be another good Windows user interface for the Inet. It adds Mosaic and WAIS and will work with the NovX InterServ Internet access provider (will be pricey) via tollfree Sprint phone lines. It will also come with a custom version of Ed Krol's *The Whole Internet User's Guide & Catalog*. A Mac version is in the works. Contact: O'Reilly & Associates at 800-777-9638, 707-829-0515, fax 707-829-01104, or *dale@ora.com*.

The big advantage of both Internet-in-a-Box and Pipeline is that the software pieces in the background are invisible. It's plug-and-play all the way. I like that.

The coolest Internet access software is ***Mosaic*** which is free and has become very popular . It lets you access images, video, and sound. It also lets you access the WWW (World Wide Web) which structures information as hypermedia (you can also access the WWW through the text-based Lynx software, also free).

Mosaic is available via anonymous FTP from *ftp.ncsa.uiuc.edu*. Once you get on, type *cd/Mac/Mosaic* or */PC/Mosaic*, depending on your computer.

FOUR STARS IN THE MICHELIN

The easiest way to get started is to get a book-software package. These all come with menu-based software that beats UNIX commands.

Hands-on Internet, David Sachs & Henry Strait, (Prentice-Hall, 1993, $27.95). Includes PC software.

The Internet CD, V. Neou (Prentice Hall, 1994, $49.95). Includes PC tools (Mac by Fall) for Eudora, WAIS, Gopher, FTP, et al., plus manual.

* *And other Contributors: Bernard Aboba, John S. Alderman, Alex Cohen, Annika Rogers, Stephen Dunifer, John Frost, David Geddes, Christine Maxwell, Kenneth Newby, Tim Pozar, Yair Sageev, Vedder Wright.*

Why just be

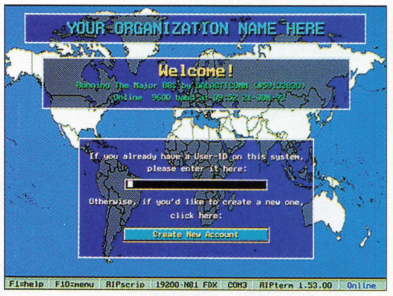
74026.8073@compuserve.com

when you

could be

you@your.com

instead?


YOUR ORGANIZATION NAME HERE
Welcome!
If you already have a User-ID on this system, please enter it here:
Otherwise, if you'd like to create a new one, click here:
Create New Account

Don't be a faceless number on the information superhighway. Run your own electronic Bulletin Board Service (BBS), and you can stand out to prospects, customers, friends, and associates on **the Internet.**

The Major BBS lets you operate a full-fledged online service right from your desktop computer. E-mail, file upload/download, message conferences, are all included — and you can add Internet mail and newsgroup forums as easily as "A:INSTALL".

For more information, give us a call at **1-800-328-1128** (outside the U.S. and Canada call 305-583-5990).

GALACTICOMM

The Internet Companion Plus, Tracy LaQuey with Jeanne C. Ryer (Addison-Wesley, 1993, $19.95, 198 pages). Includes WorldLink access software for PC and Mac. A quick and dirty solution. The PC version (for DOS) gives you e-mail, newsgroups, and file transfer, using PSINet, an Internet access provider, with easy menu access. Problem: the software automatically downloads *all* messages from all newsgroups you subscribe to—guaranteed info overload. A Mac version is also available but lacks newsgroup access.

Internet Explorer Kit for Macintosh, Engst & Dickson (Hayden Books, 1994, $29.95, 400 pages). Adam & Bill's excellent adventure/guided tour of Internet resources. Includes software for accessing files, people, and info. Companion volume to *Internet Starter Kit for Macintosh*.

Internet Starter Kit for Macintosh, Adam C. Engst (Hayden Books, 1993, $29.95, 641 pages). Easiest way to get up on the Internet on the Mac. Includes MacTCP, Eudora mail reader, InterSLIP–communications software, Fetch and TurboGopher and two weeks free-trial Internet connect time. Bestseller.

Internet Starter Kit for Windows, Engst, Low, & Simon (Hayden Books, 1994, $29.95, 641 pages). Includes software for e-mail, file transfer, info searching, and newsgroup access.

The Mac Internet Tour Guide, Michael Fraase (Ventana Press, $27.95, 288 pages). Software included for e-mail, FTP, news reading. (Make sure you get the new 1994 edition, which includes MacTCP, or it won't work.)

Navigating the Internet, Richard J. Smith & Mark Gibbs (Sams Publishing, 1994, $29.95, 640 pages). Includes PC Windows software supporting electronic mail, FTP, telnet, Gopher, and more.

The PC Internet Tour Guide, Michael Fraase (Ventana Press, $24.95, 284 pages). Includes Minuet and UMSLIP software.

Using the Internet, Tolhurst, Pike, & Blanton (Que Books, 1994, $39.95). Includes extensive newsgroup listing and PC software.

SURE-FIRE SHERPAS

If you're really adventurous and have a high tolerance for frustration, you can assemble your own software combo. Bernard Aboba (*aboba@netcom.com*) recommends the following:

For Mac: MacPPP (ftp from *merit.edu* in directory: */pub/ppp*) and MacTCP (bundled with System 7.5). For e-mail: Eudora. Get shareware version by FTP from *ftp.qualcomm.com* and *cd /quest*.

Commercial version adds free tech support and advanced features—call Qualcomm: 1-800-2-EUDORA or *eudora_sales@qualcomm.com*. For newsreaders: NewsWatcher and InterNews: *ftp sumex-aim.stanford.com* and *cd/info-mac*.

For PC: Packet drivers (free, FTP from *oak.oakland.edu.archive*) and **Trumpet Winsock** for Windows (shareware, $20 contribution suggested, FTP from *biochemistry.bioc.cwru.edu*). For technical details, download Aboba's thorough "IBMTCP FAQ" via FTP from *ftp.netcom.com* in the */pub/mailcom/IBMTCP* directory and get *ibmtcp.zip*) or at World Wide Web page *ftp://ftp.netcom.com/pub/mailcom/internaut/index.html*. A Windows version of Eudora is also available from Qualcomm.

If all this sounds forbidding, relax. There are plenty of fellow explorers out there to help. Check the FAQs (frequently-asked questions) in the *news.answers* newsgroup and *ftp//ftp/rftm.mit.edu/pub/usenet-faqs*. Also read the *news.newusers* newsgroup. And log in to a local BBS (most are free) or commercial online service, where there are usually discussion groups or other users available to help.

Remember, to the reigning sultans, the Internet is just a dry run for the NII (National Information Infrastructure). The sooner you log in, the sooner you'll be positioned to deal with the wily sultans. Do you really want Al and Tipper controlling what you read, watch, and listen to?

M2

AGORAPHOBIA

MADE PHUN

BY JOHN FROST

IRC

IRC (Inter Relay Chats) channels allow live chatting on a wide variety of topics. Type: *irc <#name>*. Here are some of the most interesting current IRC channels:

#Autopia Jagwire X's Autopia group
#ccc Chaos Computer Club ("*/ msg CCCServ info*" for CCC info)
#cDc Cult of the Dead Cow
#CyberPunk Cyberpunk ("*/msg CyberBot info*" for CPBot Files)
#drugs Drugs ("*/msg LearyBot info*" for LearyBot Files)
#earthquake Active after a major earthquake
#free.acid Heeheehee
#future FutureCulture
#hack Hacking
#leri Metaprograming and Expanding Consciousness
#mindvox MindVox
#phreak Hackers and Phreakers
#Rave_Scene Raves
#report News reports from hot spots around the world
#tribe Of, about, with the tribe e-list.

MUDs

MUDs (Multi-User Domain or Multi-User Dungeon) are multi-user role-playing-games using text-based virtual worlds. Most MUDs are games based on science fiction, fantasy, space, cyberpunk themes. Research, conferencing, and academic MUDs are popping up. MUDs go up and down a lot, so not my fault if you can't access them. To log on to a MUD, type: *telnet <address>* (use the IP number in parentheses if the text address doesn't work).

Name and Telnet address

Amarynth: pharos.acusd.edu wlu.edu 9999

BattleTech: von-neumann.info.polymtl.ca 3026

BayMOO: mud.crl.com (165.113.1.30) 8888

BTech3056:mccool.cbi.msstate.edu (130.18.104.2) 3056

(EVIL!)mud: ritz.mordor.com (165.254.109.51) 4201

Harper's Tale MOO: netman.widener.edu (147.31.1.51) 8888. (A themed MOO, based on Anne McCaffrey's *Dragonrider of Pern*)

HoloMuck:collatz.mcrcim.mcgill.edu 5757

LambdaMOO: lambda.parc.xerox.com 8888

MediaMOO: purple-crayon.media.mit.edu 8888

MicroMUSE: michael.ai.mit.edu (18.43.0.177) (login: *guest*)

Regenesis: birka.lysator.liu.se (130.236.254.159) 7475

TimeMuse: murren.ai.mit.edu (18.43.0.179) 4201

TOS_TrekMuse: ed-ce-034.stanford.edu (36.109.0.64) 1701

TrekMUSE: grimmy.cnidr.org (128.109.178.37) 1701

Virtual Realities: coyote.wustl.edu (128.252.136.100) 3019

ZenMOO: cheshire.oxy.edu (134.69.1.253) 7777

For MUD updates:

FTP: *FTP.TCP.COM* then *cd/pub/mud* and *ls*. To subscribe: *jwisdom@gnu.ai.mit.edu* (put "mud list" in subject)
Newsgroups: *rec.games.mud.announce* and *alt.mud*

NEWSGROUPS

Newsgroups are discussion groups on thousands of different topics. Here's my Top 20 list of the most interesting ones (use a news reader to access):

alt.2600 The tech, lifestyle & controversy surrounding the (in)famous hacker zine.

alt.activism Activists and the international political scene

alt.artcom The easiest way to track the art community.

alt.binaries Pictures, programs, multimedia, etc., including erotica Jesse Helms doesn't want you to see.

alt.comp.acad-freedom Academic freedom issues related to computers and the Internet.

alt.cyberpunk Cyberspace and cyberpunk technology, featuring the continual debate over Gibson and his *poseur v. visionary* status.

alt.devilbunnies Probably better left undescribed. But cute, trust me.

alt.drugs Recreational pharmaceuticals. Always a hot topic.

alt.internet.access.wanted Look here for lists of dial-up access to the Internet.

alt.internet.services This is the place to start looking.

alt.irc About the Intert Relay Chat, the CB of the Internet.

alt.music Info on your favorite band or music style.

alt.online-service Commercial online services and the Internet (America Online, CompuServe, Delphi, Netcom, WELL).

alt.politics.datahighway Al Gore's dream. Voice your opinion here.

alt.society.generation-x Are you under thirty? Weaned on Pong, Atari or the Brady Bunch? This newsgroup is for and about you.

comp.org.eff.talk *The* political forum about the Electronic Frontier. Current hot spot for Clipper chip news and dialogue.

misc.legal.computing The legal climate of computing from patents to copyright and freedom of speech.

news.answers Look here to find almost all the answers you'll need to navigate through the Internet.

rec.games.mud MUDs, the closest thing to cyberspace we've got today. Read this hierarchy to start your mudding addition today.

sci.crypt PGP, RSA, Clipper Chip, data encryption, etc. The future of data privacy (or the lack thereof). M2

VOICES FROM THE NET

DOWNLOAD THE LOWDOWN

There are thousands of fact-filled files out there begging to be downloaded. There are two popular ways to find and download them:

FTP requires you to know the exact file name. Type: *ftp <address>* and log in as *<anonymous>* with your e-mail address as the password. At the ftp prompt, type: *cd <the/path/name>*. To list the files in the directory, type: *ls*. To download, type: *get <filename>*.

Gopher is easier. Just type: *gopher <address>* and follow the menus.

Also check out the **Archie** command when you don't have the exact file name.

Here are some of the most interesting files out there:

Cyberpoet's Guide to Virtual Culture. The inheritor of the now famous Future Culture FAQ. One of the key resources for exploring the fringes of the Net. Published by John Frost.

ftp ftp.eff.org.
path: */pub/Net_info/Cyber/cyberpoet.gvc*

UFO Archives. The three most famous and used FTP sites for UFO and related issues. The first two carry photos (GIFs); all contain valuable resource documents.

ftp phoenix.oulu.fi
path: */pub/ufo_and_space_pics*

ftp ftp.rutgers.edu
path: */pub/ufo*

ftp wiretap.spies.com (also via: gopher)
path: */Library/Fringe/Ufo*

slopoke.mlb.semi.harris.com One of the true fringe-related sites on the net. Make sure to pick up the *High Weirdness by E-mail* guide. (*/pub/weirdness/weird2_1.doc*), the Scriptures of the Church of Virtual Reality (*/pub/weirdness/scriptur*) and an interesting guide to Loopy Quantum Gravity & String Theory (*/pub/weirdness/loopy.Z*).

ftp slopoke.mlb.semi.harris.com
path: */pub/magick* (Magick)
/pub/weirdness (lots of fringe stuff)
/pub/doc/principia (PRINCIPIA DISCORDIA)

E-Z E-ZINES

A fast and dense compilation of some of the best e-zines (electronic magazines) on the net. There's also a mailing list related to this file. Send e-mail to e-zines *request@netcom.com ftp ftp.netcom.com*
path: */pub/johnl/zines/e-zine-list.*
Or: *gopher etext.archive.umich.edu (/Zines/e-zine-list)*

EFF (Electronic Frontier Foundation). Focuses on the nexus between politics, the matrix and your rights. The resource depth here is remarkable. This is also the home of the on-line version of Bruce Sterling's *The Hacker Crackdown.*

ftp ftp.eff.org

CyberWire Dispatch by Brock Meeks. CyberGonzo on the "information superhighway" and your privacy. A bare-fisted champion for a free matrix.

gopher gopher.well.com

LOD Archives. The LOD Archives represent a perfect opportunity to study and enjoy one of the most famous hacking organizations, The Legion of Doom. E-mail *lodcom@mindvox.phantom.com* to get on the LOD mailing list. There is a LOD FAQ available by e-mail from *fringeware-request@io.com* (type *get lodcom.txt* in the body to get the LOD FAQ).

ftp phantom.com
(select Item #5 LOD Communications)

Drum. A wonderfully done and informative "edge zine." A meditation on the new edge, drugs, technology, and generational identity. Also a main archive for e-texts and e-zines.

ftp etext.archive.umich.edu
path: *Zines/Drum*

MAIL JUNKIES

Mailing lists are discussion groups conducted via e-mail. To subscribe, send e-mail to the subscription address and insert your subscription request in the body of the e-mail. You will then get information on how to contribute to the discussion and start to receive e-mail posted to the mailing list. Here are three interesting ones:

FutureCulture. A blend of new edge, cyberculture, technoculture and future-culture memes. High noise/signal ratio.

listserv@UAFSYSB.UARK.EDU
message body: *sub futurec <yourfullname>*

Extropians. A serious community that discusses some of the key issues for the future, including nanotechnology, cryonics, anarcho-capitalist politics, and technological extension of human intelligence. It's a deep crowd, read up before you participate.

extropians-request@gnu.ai.mit.edu (real-time)
exi-daily-request@gnu.ai.mit.edu (digest)
exi-essay-request@gnu.ai.mit.edu (essays)
message body: *subscribe <yourfullname>*

Leri-L. A mailing list originally devoted to meta-programming, philosophy, expanding consciousness, it has morphed into one of the more interesting virtual communities on the Net, compete with family squabbles and high noise to signal ratio. A living experiment in virtual community. This is also a high volume list, so be prepared for info overload.

majordomo@pyramid.com
message body: *subscribe <yourfullname>*

M2

BY DAVID GEDDES

EXPLORE
the
INTERNET
FREE!

DELPHI is the only major online service to offer you full access to the Internet. And now you can explore this incredible resource with no risk. You get 5 hours of evening and weekend access to try it out for free!

Use **electronic mail** to exchange messages with over 20 million people throughout the world. Download programs and files using "**FTP**" and connect in real-time to other networks using "**Telnet**." Meet people from around the world with "**Internet Relay Chat**" and check out "**Usenet News**", the world's largest bulletin board with over 4500 topics. If you're not familiar with these terms, don't worry; DELPHI has expert **online assistants** and a large collection of help files, books, and other resources to help you get started.

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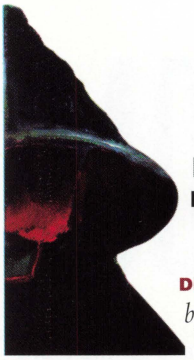
Questions? Call 1-800-695-4005 (voice).
Send e-mail to INFO@delphi.com

Offer applies for new members only. A valid credit card is required for immediate access. Other restrictions apply.
Complete details are provided during the toll-free registration.



D A R K A L L E Y S

DING-DONG DELL
by John S. Alderman

One of the friendliest and most helpful communities on the Internet is the **WELL** (Whole Earth 'Lectronic Link), a BBS started by Whole Earth Review and located in Sausalito, CA. This is the ideal place for the beginner to dive in and learn about the Net. Check out their Internet conference for topics ranging from the latest seductive ftp site, the subtleties of running Mosaic, to getting Internet access in France and Asia. To join, set up your modem, dial 415-332-8410, login as newuser and then follow the prompts. And while you're there, look for us in the *Mondo* conference...

REPLICANTS IN CINEMAS P A C E
by Alex Cohen

The third machine age is over. Silver-based photographic media is only the last vestige of a superannuated mechanical aesthetic. Our contemporary age privileges hyper-miniaturization, the lack of moving parts, and transparency of communication This new aesthetic has more in common with the possibilities of silicon than it does with material mechanics.

CinemaS p a c e is the newest WWW journal designed to focus on the cinema and explore this new aesthetic. Created by UC Berkeley's Film Studies program, CinemaS p a c e aspires to break free of disciplinary boundaries and bring a diverse assortment of writers, thinkers and users of technology into collaboration and exchange to elucidate the transformation of cinema in the digital age.

Using Mosaic, CinemaS p a c e pushes the envelope. It will eliminate printed copy while maintaining what was so attractive about it—its graphic and typographic charms—and it will include digital sound and video.

A fully electronic hypertext journal, CinemaS p a c e isn't reproduced. It's replicated at its destination. It reactivates itself within the subscriber's own particular situation, so creators and readers meet. Collaborations will take place in a network of individuals. Their works will be transmitted to various centers of production through the Internet. CinemaS p a c e isn't just a journal. It's an extended experiment in interoperative and non-localized publishing.

WWW address: *http://remarque.berkeley.edu:8001/~xcohen/index.html*
or e-mail: *xcohen@garnet.berkeley.edu.*

Alex Cohen, Lecturer, Film Studies Dept., U. of California at Berkeley.

TYPICALLY ERRONEOUS ZONES
(From *New Riders Official Internet Yellow Pages*)
by Christine Maxwell

High Weirdness by E-Mail
Bizarre philosophies, such as SubGenius, Discordia, UFOs, etc.
ftp://etext.archive.umich.edu/pub/Zines/Weirdness

The Purple Thunderbolt of Spode
News of worshipers of OTIS, the ancient Sumerian God/dess of life. To subscribe, mail to: *barker@acc.fau.edu*

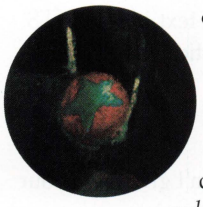
Titnet
Scientists working on tits and other hole-nesting birds. Contact: *jhailman@macc.wisc.edu*

MANKIND RESEARCH UNLIMITED
by Wes Thomas

If you like to question reality and subvert the dominant paradigm, Portal is the place. Everything from ancient cosmologies of the Sumerians and Mayans (the latest from Sitchin and Arguelles) to alternate medicines, aromatherapy oils from around the world, 3D torus donuts with hyperspace flame letters of Dan Winter, crop circles, the face on Mars, and sound bytes from space music from around the world—with pix and sound accessible via Mosaic. Includes free tutorials and items for sale. Info: email *portal@netcom.com*

PUBLISH YO 'OWN BAD SELF
by Wes Thomas

Got info you want to publish? You can do it almost instantly on the Internet. Here are four ways:



• **Start your own mailing list or newsgroup.** The books listed below will tell you how.

• **Get a dial-up Internet connection.** If you don't need full-time access, you can get a dial-up connection and domain name (such as *pub.com*) from the national **HoloNet** network (510-704-0160 or *info@holonet.net*). You can dial up regularly to upload your latest e-zine to your subscribers, or access other Internet services. You can also assign e-mail addresses for multiple users at your zine (such as *editor@pub.com*).

Or if you have a BBS running The Major BBS multi-user BBS software, get **Major Gateway/Internet** (a $249 add-on), which gives your subscribers access to e-mail, file transfer, and newgroups through a UUCP Internet service provider (Galacticomm, 800-328-1128 or *sales@gcomm.com*).

• **Get a real-time Internet connection.** This means you're always online, which is more expensive but great if you need instant access or have a large volume of messages to transfer.

This requires a dedicated computer, leased phone line, and good technical knowledge. You go through an Internet access provider who can support full-time leased lines.

Check out **The Little Garden** ($70/month, 415-487-1902 or *info@tlg.org*) and **North Bay Network** (415-472-1600), which offers a high-speed 56 kbps leased line with name service for your domain, address space, ftp archive site, and e-mail server for $900 startup and $300 monthly.

Some services may also let you have your own FTP, Gopher, or HTTP server. Netcom offers FTP; Zilker Internet Park offers all three. Also check out Portland's RAIN, Cruznet (Santa Cruz), Boston's The Internet Access Company (TIAC), and NWNET in the Pacific Northwest, which is offering SLIP access at quite a good price.

• **Use an online Internet-based publisher** and upload files to them to publish. **O'Reilly & Associates' Global Network Navigator** uses Mosaic to offer a graphical user interface for Internet-related news, features, and advertiser-sponsored product info.

For a free account, phone 800-998-9938 or e-mail: *info@gnn.com*. M2

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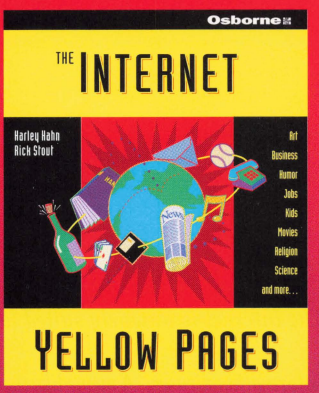

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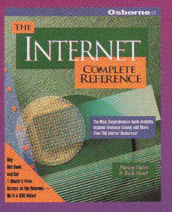

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Photo-Illustration by Allan Wallace

HOW TO TAP GOVERNMENT COMPUTERS

It's amazing what you can find nosing around federal and state computers. Here are some of the most interesting. Some of these let you link into yet other computers. Happy trails!

Chemical substance fact sheets.
gopher ecosys.drdr.virginia.edu

Congressional Legislation.
telnet locis.loc.gov

Federal Register.
gopher gopher.netsys.com

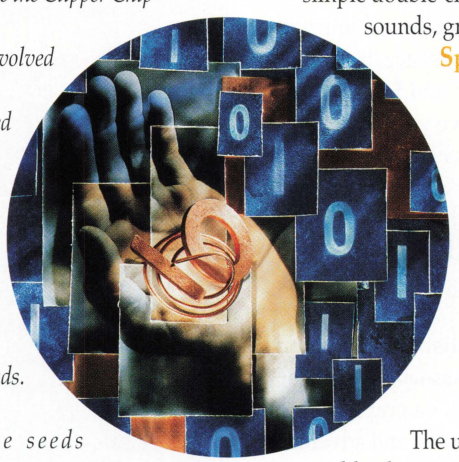
Fedworld (National Technical Information Service BBS). Gives you access to over 100 U.S. Govt. BBSs and full text of select U.S. Govt. publications, statistical files, satellite images and more.
telnet fedworld.gov
Login: *new*
Password: *any ID* (don't give them your ID or phone number).

Internet Wiretap. A variety of interesting and informative materials on the U.S. Govt.
telnet info.cern.ch (128.141.201.74)

LOCIS (Library of Congress). Current status of federal legislation from 1973 to present,

LA MEME CHOSE

The Internet is uniquely suited for the rampant spread of information viruses. A meme like the Clipper Chip fiasco spreads until everybody involved in the Internet has been infected by it. But it takes a Hiro Protagonist (after Neal Stephenson's Snow Crash) to keep track of all the once and future viral trends. I've tried to identify the seeds of those memes that stand the greatest chance to rock the Casbah and morph into full-fledged Inet viri.



INTERPEDIA

An e-book where, if you stumble across a word you don't know, a simple double-click will give you the definition—including sounds, graphics and movies, e.g.:

Spam (spam). 1. A trademark for spiced pork products, luncheon meat and deviled luncheon-meat spread. 2. To flood the screen with high noise and low signal text. "Then he spammed us with the State of the Union address and I had to log out." First found on MUDs and now prevalent across the net. [cf. Python clip]

Photo-Illustration by Allan Wallace

The ultimate hyper-reference. Better yet, it plans to be public domain, encompassing non-copyright material and individual submissions. Anyone with an Internet account will be able to browse, submit and authenticate any topic. Check out the *comp.infosystems.interpedia* newsgroup.

copyright information, and the L.C. catalog.
telnet locis.loc.gov (140.147.254.3)
or *gopher marvel.loc.gov*

State Legislative Data Centers Demand direct Internet access. (In California Jim Warren forced the state to do it, so can you): *Gopher gopher.ucsc.edu (check out public law AB 1624, which Warren pushed through).*

Supreme Court Decisions
gopher info.umd.edu

Voice of America VOA newsfiles
ftp ftp.voa.gov
gopher gopher.voa.gov

White House For documents: To receive instructions, send a request to *publications @whitehouse.gov.*
In the body of the message, type: *Send Info.*
Al Gore e-mail: *vice.president@whitehouse.gov* (you have to include your snailmail address for a reply, believe it or not).

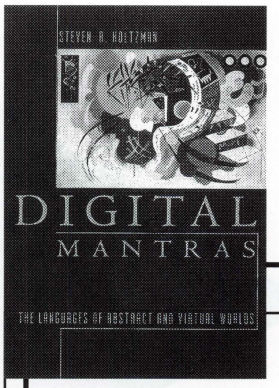
White House Press Releases. Found on many gophers and also available through a variety of discussion/distribution lists and newsgroups, such as:
misc.activism.progressive

World Factbook. Spook central. Full text of the CIA-produced *World Factbook* which provides information about the geography, people, government, economy, communications and defense of countries around the world.
gopher wiretap.spies.com/electronic books/cia world factbook

STEPHEN DUNIFER

For more listings and updates, download the following via anonymous FTP:
Internet Resources: U.S. Federal Government Information (*ftp nevada.edu* in */liaison* directory), *us-govt-net-pointers* (*ftp rtfm.mit.edu* in */pub/usenet/news.answers/us-govt-net-pointers*), or *etext.archive.umich.edu*

M-2



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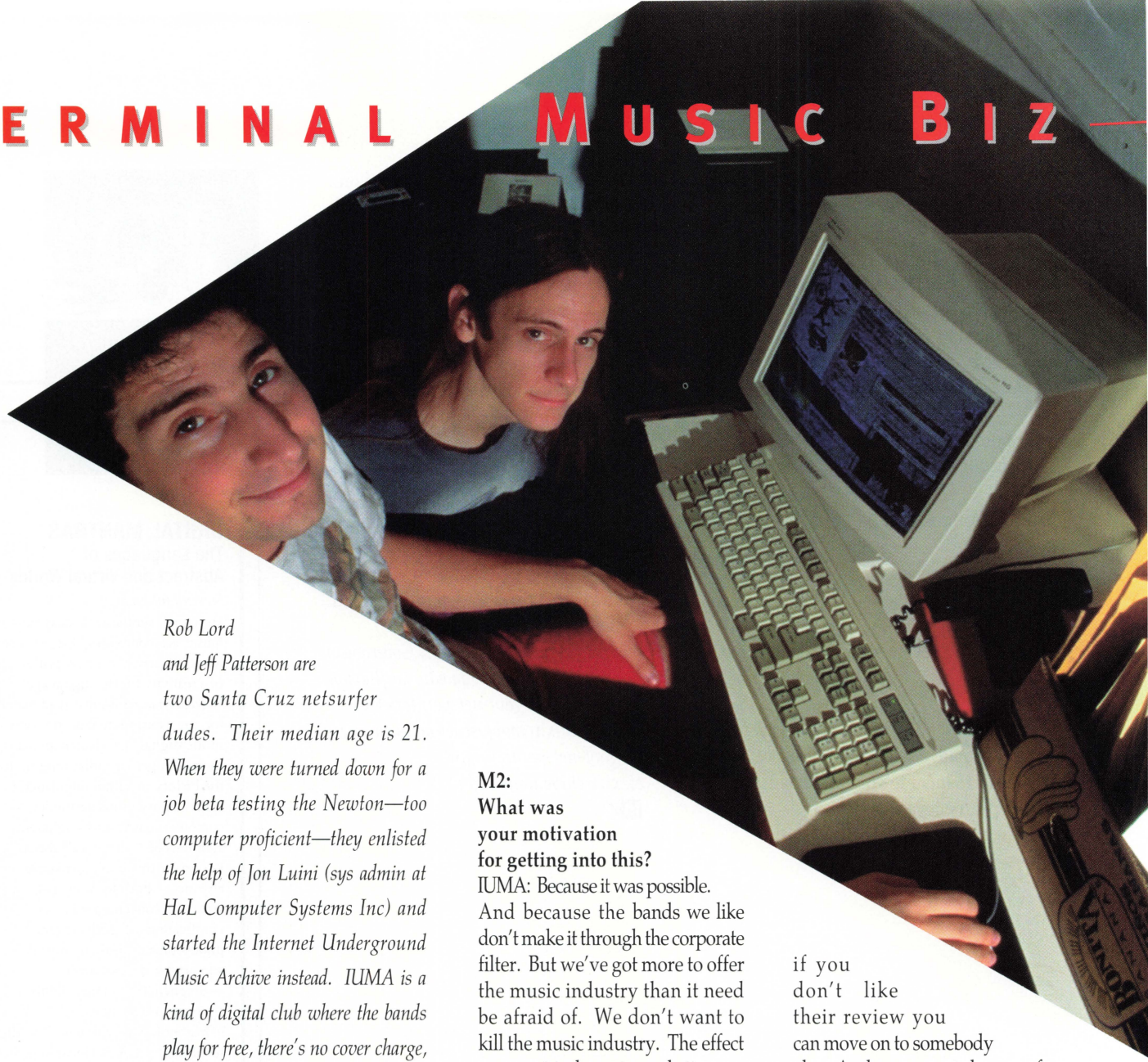
VIRTUAL COMMUNITIES
They'll morph dramatically this year, growing closer and larger with the advent on new multimedia-capable **communiteks**—info techs that allow a community to develop in cyberspace, e.g., IRC and e-lists (discussion groups where your letters are posted to all subscribers). Real-time voice chat sessions—and MUDs being overrun by virtual tribes looking for a home—will usher in the new VCs. Chances are that Netizens will belong to multiple VCs and profess their membership in their .sigs.

JOHN FROST

MOSAIC
GUI's to the net will be all the rage. Look for dial-up versions to appear soon. Although the rate of growth for the WWW might slow down a little bit, more and more files, sites and even books will be available in this very accessible form. Look for a commercial version of Mosaic (and maybe a few competitors) in the next year.

NET.CODIFICATION
As it stands now, the law of the Internet rests in protocols and the hands of each sysop. As the number of Netizens grows, look for currently isolated instances of "legislation" to spread. A few e-lists have always had certain membership restrictions, e.g., civility and gender. Some MUDs have already closed their lists to the public. More will close the ranks as control is handed over to the members in a "democratic" style.
Two very popular MOOs (MUD Object Oriented) are already in the middle of this process. Speculation is the future will bring a "members only" feel to many IRC channels and a rating system to USENET. Would *alt.sex.bondage* be rated R or X? M-2

TERMINAL MUSIC BIZ



Rob Lord and Jeff Patterson are two Santa Cruz netsurfer dudes. Their median age is 21. When they were turned down for a job beta testing the Newton—too computer proficient—they enlisted the help of Jon Luini (sys admin at HaL Computer Systems Inc) and started the Internet Underground Music Archive instead. IUMA is a kind of digital club where the bands play for free, there's no cover charge, and the owners are just happy that you came. Accessing the ***World Wide Web*** *(WWW) database, they upload digital sound files, images, and text to let you, using the cutting edge* ***Mosaic*** *interface, listen to music you won't find in the record stores. If you don't have the high-powered access to the Net needed to run Mosaic, you can use* ***Lynx****, Mosaic's poor country cousin, to access only text and sound files from the same database. Rob and Jeff took time out from their mid-terms to talk to us over the phone.*

BY KENNETH NEWBY

M2: What was your motivation for getting into this?

IUMA: Because it was possible. And because the bands we like don't make it through the corporate filter. But we've got more to offer the music industry than it need be afraid of. We don't want to kill the music industry. The effect we want to have is evolution.

M2: We foresee Internet labels. Do you harbor that ambition?

IUMA: The reason we're so good is because we're not into the sort of exploitation that record companies may be into. Oh God, that sounds terrible. You're going to quote that I guess. We see a whole different sort of industry coming up.

We don't want to charge the bands because they're the ones who don't really have the money to do it. And we don't want to charge people for use of our site, because the whole concept of netiquette forbids that. We're just trying to give back what we can to the Net.

Better than that, people will turn into online reviewers, and if you don't like their review you can move on to somebody else. And anyone can be one of those reviewers. There's a public review place right on the site, you can go in and trade comments about the bands, and comments can also be sent directly back to the artists. Right now there's an artist called Scott Brookman with "When I Die You Can't Have My Organs" gathering comments. There's already some online review going.

M2: How did you get involved with WWW?

IUMA: We found it while netsurfing. When I found out, it was just as important as MPEG audio compression. Before we just had an **FTP** site, it was very unpretty, not automated blah blah blah. With the Web and Mosaic, and **HTML** formatting and online

IUMA photo by Chris Davis

images and hypertext links and all that, it provided almost a record store front for the IUMA that anyone could use by just clicking.

M2: As this kind of service develops on the Net, how do you foresee handling the congestion it will create with the large amounts of data being transfered?

IUMA: Fibersphere in 95! Maybe Gore's NII (National Information Infrastructure) bill, MCI's infohighway plan, PacBell's optical fiber plan and others to come will open new bandwidth.

M2: What sort of compression are you using? What kind of sampling rate?

IUMA: We're going at 44.1 kHz, 16 bit, stereo. With MPEG compression we compress it at about 10:1 right now, so a 50 meg file comes down to a 5 megs or under, and without much loss of quality. It's a model compression—it cuts out information that your ear wouldn't normally hear.

Right now it's just one song per band. If you have a 14.4 modem, a 3 minute song will download in a little under 30 minutes. That's why we're putting up smaller samples of songs. You can download a sample of a song in like 2 minutes. For these, we're putting up shitty dot AU files, 11 kHz, mono, MPEG compression—really bad. These are 15 seconds of low fidelity 8 bit, 11 kHz, mono audio. We've found that if they play into a genre well, that's about what you need. And they're small enough to get a taste. If you have an Ethernet connection, depending on where you are, you can probably get a song in less time that it takes to listen to it. With 28.8 modems it'll be half the time, even a little better than that. They do about 3500 characters per second, as opposed to 14.4's, which do about 1600.

M2: When you have Ethernet, you should be able to do conversion on the fly and give live concerts.

IUMA: That's what we're hoping for. Using the UNIX MPEG audio player, you can have it piped right in.

M2: So is this system similar to the one being used on the Sony Mini Disc?

IUMA: Mini Disc uses MPEG 1 which isn't as good as 2 which we use. Although I think they do it at a lower compression rate. The great thing about MPEG audio is it can be scaled, so as soon as there's more bandwidth, we can

FTP: FTP (file transfer protocol) is the method used on the Internet to copy a file from one computer on to another. Using FTP, you can search through directories on computers around the world, locate a file, and transfer a copy of it to your own machine.

HTML: HyperText Markup Language. The language used to mark up text files with links for use with World Wide Web browsers.

HTTP: HyperText Transport Protocol. The protocol used by the World Wide Web.

IUMA site is currently located by the World Wide Web at *http://sunsite.unc.edu/ianc/index.html* and by Gopher/FTP at *sunsite.unc.edu* in the directory *pub/electronic-publications/IUMA*. Email to IUMA can be sent to *ianc@sunsite.unc.edu* or through the comment form on the site. Voice mail for IUMA: (408) 457-7667. Snail mail: IUMA, Attn: Jeff Patterson, 217 Highland Ave, Apt #3, Santa Cruz, CA 95060.

Lynx: A text-only browser for the World Wide Web that also allows you to read FTP and Gopher.

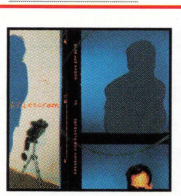
Mosaic: An advanced browser for the World Wide Web. Mosaic plays sound and video and displays formatted text and graphics.

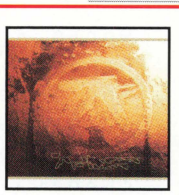
World Wide Web (WWW): A hypertext system for searching the Internet. It allows you to browse using a variety of Net resources, including Mosaic, FTP, telnet, and Gopher.

Warner Forum

PROPX: Aphex Twin. selected ambient works, volume II.
DATA11: Who < i'm ignorant > ?
WOOF69: GNR dudes!!!!!!!!!!!!!
MODM: serious ambient *very trippy*
PROPX: 2 disc set, all new.
WOOF69: Anyone for a private session?
MODM: aka polygon window - what the monolith in 2001 would sound like on a pair of marshall stacks at 13
PROPX: genius but he'd hate to be called that
DATA11: Woof, go to the Pleather Room.
PROPX: he creates most of his music while lucid dreaming
MODM: < ROTFL > thanks data.
WOOF69: MUSICSNOBS
Byeeeeeeeeeeeeeeeeeeeeeeeee
MODM: Bye Woof. Px: do you have the new Jon Hassell?
DATA11: BYEEE wooooffff
DATA11: Hassle?
MODM: Jon Hassell and Bluescreen "dressing for pleasure"
PROPX: the avant* jzz* hiphop *acid* neo *post* tableau* proto *ambient guy right?
DATA11: bluescreen: when the starship enterprise flies through space they film it on a blue screen and then
DATA11: strip in the background later < g >
MODM: he's done amazing things
PROPX: Jon Hassell's totally out there
MODM: did you hear his stuff with eno, peter gabriel, or kronos
DATA11: I'll tell ya what's out there: aliens
PROPX: M — you can check the warner rprise board for any tour dtes in your area on aol and compuserve
MODM: does Aphex Twin tour?
PROPX: yes!!!! they busted up the LA rave < for lack of a better word > before it started and it was huge
WOOF69: what does tableau mean?
LUDED40: Taboo, Woof. that's a private room
MODM: I'm outta here. thanks for the info.
PROPX: I'm bailing. See ya.
DATA11: Me too!!!!!!!

Album Docs





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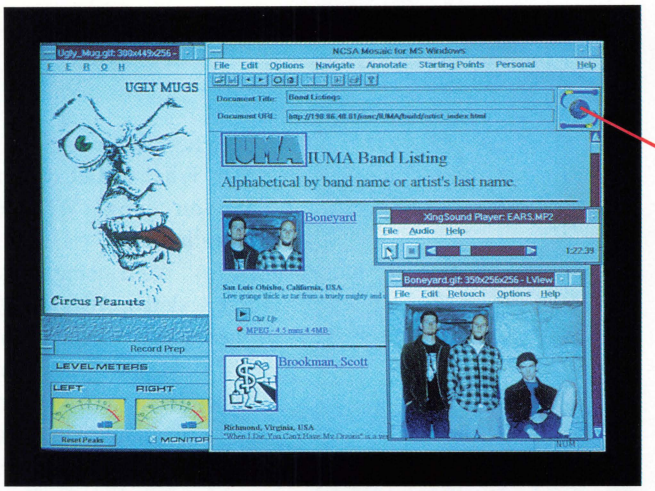

go straight to CD quality. Right now, it's about cassette quality, which is more than good enough for most of the garage-band tapes that we're getting. Typically it's the tape itself that limits the quality of our sound file, not the compression. And it's an open standard—for $100 you can buy the specifications and build your own decoder.

M2: Did you build your own stuff?

IUMA: We have a friend who's on the staff who *has* built his own decoder—but we haven't had to do it. We've inspired companies to do it for us. I told Aware Corporation we wanted a *real-time* player for the Macintosh and SGI and they made us one. Sun Microsystems is doing the same thing.

M2: Have you had any backing or funding for this project besides the technical support you already mentioned?

IUMA: Michael Tiemann and John Gilmore at Cygnus Support became involved with IUMA in its infancy and continue to be our mentors. Tiemann is the guy who created the GNU C++ compiler, and Gilmore is one of the founders of the Cypherpunks. John Magid and others at the University of North Carolina have been tremendously supportive of the project. And of course our parents have helped us out of a few financial binds. Thanks Ma!

M2: This is what the Internet should to be used for—direct delivery.

IUMA: When IBM and Blockbuster got together to make their venture, all the major record companies dissed them because they wouldn't have the grip on scarcity that they'd had before. The one thing about no scarcity is, if you go by microeconomics—it's free! There's no market value. That's really backward thinking on the part of the majors.

M2: But Blockbuster's known for banning unacceptable videos or cutting them badly. How do you feel about censorship?

IUMA: We have no plan to censor at all. We're into the whole concept of free speech. Frank Zappa's our big influence on that.

M2: Speaking of Zappa, what about the Mothers of Prevention? Since Tipper's husband runs the Info Superhighway, what does this do to you?

IUMA: I think Tipper's been taking it easy since Gore got to the position he's gotten to. I think it has more to do with the fact that they're trying to appeal to the MTV generation. And if a song is really that bad, you just FTP it. There are plenty of mechanisms on the Internet to get whatever you want from one place to another.

M2: Discretion assured.

IUMA: It's not even an issue. The big thing that should be

considered isn't foul language, it's what about already copyrighted CDs?

M2: What's to stop anyone from saying, "Hey, we can distribute our favorite music. Just take the digital output from my CD and convert it."

IUMA: Welcome to the future! There's no way to limit the distribution of your software on the Net. It will be pirated (but it should be noted we buy all the software that we use).

M2: Are you soliciting music from musicians at large? And how do they send you their music?

IUMA: Yes, we're requesting submissions from musicans and bands. We have certain specifications for bands who submit songs, so bands considering submittal should either look at our info sheet on the **IUMA site** or leave their address on our voice mail. Basically, up to 5 minutes of audio on a cassette, DAT or CD; one page of artwork, photography, cover art; and up to two pages of information about the band including band, song and contact information for those who want to pursue more material by the band. We're offering this as a free service, but we suggest a donation of about $20 to pay us for our time and costs. We're also ready to deal with labels and they can contact us directly to discuss the possibilities.

M2: What do musicians get out of this?

IUMA: Getting something out there is the reward. You can build your own fanbase. It's an online equivalent to the hype machine. I've put that in a negative light, but the point is, it's not just "I was here, I'm gone, I'm sucked back into the music industry."

People are at least as passionate about their music as they are about their shareware. They will pay their artists to get that specialty item that the band can now make, because there is that direct connection. We're taking record stores and record companies out of the distribution loop. Mosaic has the capability to do PGP encryption, so somebody could upload their credit card numbers and put in an order direct to the band.

And you don't have to wonder "are there going to be die hard fans?" We have an **HTTP** log file that keeps track of all the songs that are downloaded, how often they're downloaded, and also who takes it, too. We've heard from a number of people in the music industry that would be really valuable to them. If we printed out a monthly report and sold it, we could make some terrific amount of money. Someone who'd worked in the business for 20 years said "You could have the six majors bowing to you to get hold of that file."

M2: Like the Gavin Report.

IUMA: Only this does it automatically. There are some that are downloaded between 50 and 60 times apiece.

M2: What happens if the majors move in to this kind of service? Do you have a long term vision here?

IUMA: Let the majors move in! They will still be pretty selective of the bands that are represented on their site, and chances are they won't be free. We'll still be the route for the unconventional, untraditional, and unsigned up-and-coming. Our long term vision is pretty broad and most people wouldn't buy into it, but we do hope to make music a universal once again. By making music more accessible maybe genres will break down as indie, or anti-commercial, music and "mersh" music are given equal opportunity to find their audiences.

M2: What other future thoughts have you got that you can't realize yet?

IUMA: Kenneth, we'd tell you, but we'd have to kill you. M2

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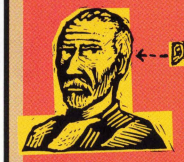

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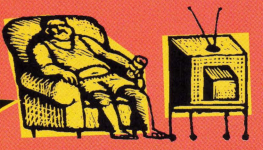

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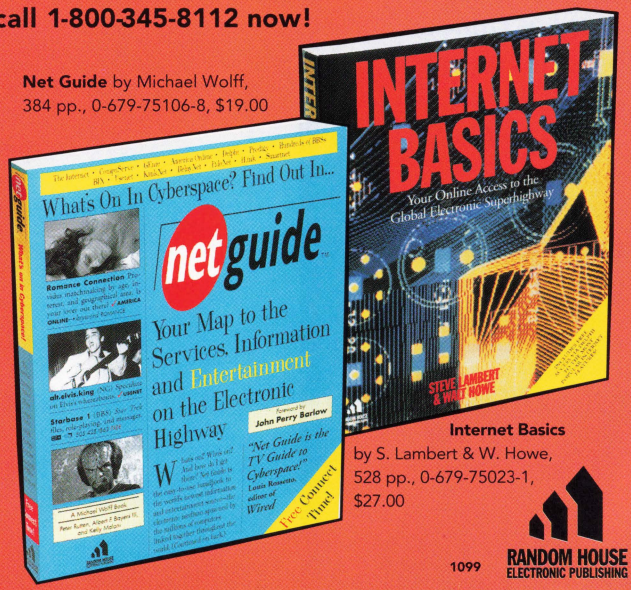
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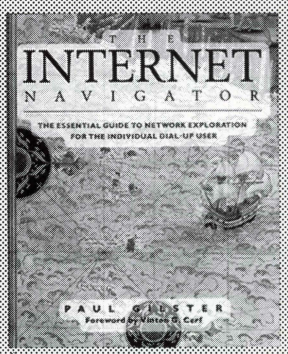

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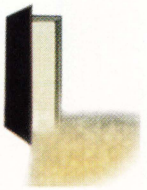


ROUND UP THE USUAL SUSPECTS

Here are the best pubs dealing with the Internet that we've been able to identify. Caveat: the net is developing very fast, so anything you read in print may be out of date. Check around the net for the latest info. Note: you can get info free on the net in Kehoe's *Zen and the Art of Internet* if you *gopher wiretap.spies.com*

MUST-HAVE BOOKS

Online Users Encyclopedia, Bernard Aboba (Addison-Wesley, 1994, $32.95, 832 pages) is the most comprehensive, in-depth introduction, and reference guide to bulletin boards and the Internet. Reviews of hardware, software for all platforms. Especially good analysis of Internet access software. For advanced computer users.

The Whole Internet User's Guide & Catalog, Second Edition, Ed Krol, (O'Reilly & Associates, 1994, 376 pages, $24.95). Update to the classic practical hands-on guide. Make sure you get the second edition. Or...

The Internet Navigator, Paul Gilster, (Wiley, 1993, 470 pages, $24.95). Another excellent hands-on guide.

New Riders Official Internet Yellow Pages, Christine Maxwell & Czeslaw Jan Grycz (New Riders, April 1994, $27.95, 900 pages, 1-800-428-5331). The best directory of the *content* of information on the Internet. Written by leading online information specialists, this is the first serious professional reference to the Internet. Organizes info by subject (instead of Internet geek lingo), with extensive keyword cross references. Includes importance ranking for each listing. (Check out "High Weirdness" listing.) This is *the* place to note: register new Internet resources for future versions of the book: send email to: *yellow_pages@poniecki.berkeley.edu*

OTHER FINE BOOKS

Connecting to the Internet—A Buyer's Guide, Susan Estrada (O'Reilly & Associates, $15.95, 188 pages).

Information Warfare—Chaos on the Electronic Superhighway, Winn Schwartau (Thunder's Mouth Press, 1994, $22.95, 421 pages). Malicious software, data eavesdropping, code breaking, chipping, HERE Guns, EMP/T Bombs, and magnetic weaponry.

The Instant Internet Guide, Brent Heslop & David Angell (Addison-Wesley, 1994, $14.95).

The Internet for Dummies, John Levin and Carol Baroudi (IDG Books, 1993; $19.95) Best intro for Inetphobes.

The Internet Guide for New Users, David Dern (McGraw-Hill, 1994, $27.95). An excellent beginning guide, highly informative, detailed, and thoroughly readable. Author is the editor of Internet World Magazine.

The Internet Roadmap, Bennett Falk (Sybex, 1994, 236 Pages, $12.99).

Internet Starter Kit for Macintosh (Hayden Books, 1993, $29.95). Includes disk with Apple's MacTCP and other software essential for establishing an icon-based Internet interface. The book discusses a variety of connection methods, including dialup UNIX shell and UUCP.

The Internet Unleashed, Sams staff, 1994, $44.95, 1387 pages. "Everything you need to master the Internet."

Learning the UNIX Operating System, Todino, Strang, & Peek (O'Reilly & Associates, 92 pages, 1993, $9.95). Concise guide to UNIX commands (essential for serious Internet use).

The Online Travel Guide, Dylan Tweney (Ziff-Davis Press, June '94, 250 pages, illustrated).

A Student's Guide to Unix, Harley Hahn (McGraw-Hill, 1993, $26.50) is an excellent guide to UNIX/Internet for the beginner. Good overview of concepts and detail, yet written in plain English.

Zen & the Art of the Internet, Brendan Kehoe (Prentice Hall, 1994, $23.95, 112 pages). The classic, updated. For Inetphobes.

The Traveler's Guide to the Information Highway, Dylan Tweeny (Ziff-Davis Press, 1994, $24.95).

OTHER DIRECTORIES

The Internet Yellow Pages, Harley Hahn & Rick Stout (Osborne McGraw-Hill, 1994, $27.95, 560 pages). 800-227-0900. Emulates a telephone yellow page directory. Fun. Non-intimidating for newbies.

The Internet Complete Reference, Harley Hahn (Osborne McGraw–Hill, 1994, $29.95, 818 pages). Combines how-to with catalog of information available on newsgroups, etc.

Net Guide, Peter Rutten, Albert F. Bayers III & Kelly Maloni (Random House Electronic Publishing, 1994, $19.00, 356 pages). Ties in with Net Guide Online, an online service (800-NET-1133). Warning: annoying cutesy illustrations and most entries are for commercial online services, not the Internet.

BY WES THOMAS

The Internet Directory, Eric Braun (Fawcett Columbine, 1993, $25.00, 736 pages). Extensive listings but of limited usefulness because it's organized by mailing list and newsgroup names rather than subject.

%@:: A Directory of Electronic Mail Addressing & Networks, Donnalyn Frey & Rick Adams (O'Reilly & Associates, Inc., 1993, $24.95, 458 pages). Reference book for finding e-mail addresses.

Also *ftp nysernet.org* for a list of other recommended books.

ZINES & NEWSLETTERS

The Internet Business Journal. Strangelove Press, 60 Springfield Road, Suite One, Ottawa, Ontario, Canada K1M 1C7. Phone: 613-747-6106. Fax: 613-564-6641 or *mstrange@fonorola.net*, $149/year. How to make money on the Internet, including advertising and marketing.

Internet World. 800-MECKLER, e-mail: *meckler@jvnc.net* 10 issues per year, $24.95.

Isoc News. Quarterly magazine from The Internet Society. Available with $70 membership at 703-648-9888, fax 703-648-9887 or *isoc@nri.reston.va.us*.

Online Access. Chicago Fine Print, Inc., 920 Franklin, Suite 203, Chicago, IL 60610. Phone: 312-573-1700. Subscription: $19.80/year. Eight issues per year covering the world of Internet and BBS services.

ora.com—Your Guide to the Books & Online Services of O'Reilly & Associates, Inc. O'Reilly & Associates, Inc., 103A Morris St., Sebastopol, CA 95472. Phone: 800-998-9938. e-mail: *letters@ora.com*. Well written free catalog/magazine, offering entertaining behind-the-scenes stories on their books on the world of UNIX and telecommunications.

The World Wide Web Newsletter. Art Computers, 13 Brett Road, London E8 1JP, UK. Phone/Fax: 011-44-81-533-0818. e-mail: *wwwn@ukartnet.demon.co.uk*. Published six times a year. UK & Europe: £26, rest of world: £40 (airmail).

Internet Services List, Scott Yanoff (*ftp csd4.csd.uwm.edu* and *cd pub/inet.services.txt*). Lists Internet files. M2

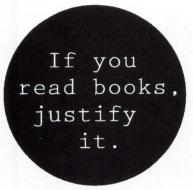
IMAGOLOGIES

Media Philosophy
Mark C. Taylor and Esa Saarinen

"The imminent arrival of new media technologies should change the priorities of contemporary philosophical inquiry and criticism. Whatever can be found lying around for potential deconstruction is from now on not nearly so important as what is waiting to be constructed, for in Virtual Reality and other new forms of media, the map becomes the territory. Mark C. Taylor and Esa Saarinen's work is an antidote to an increasingly prevalent style of academic criticism of new media forms that is inappropriately negative. It is much more courageous to construct new ideas and new vocabulary, as this book does so playfully, in order to confront the new media, and even more importantly, to help create it. This is a book of imagination and craftsmanship; a work of responsible, and at this time necessary, generativity. How reactive and anemic other volleys in the cynicism race seem in comparison!"

— Jaron Lanier,
Virtual Reality pioneer

In this provocative, innovative and remarkable book, Mark Taylor and Esa Saarinen challenge the reader to rethink politics, education, religion, architecture, economics and even thinking itself. To read *Imagologies* is to step into the twenty-first century and it is a fascinating, dizzying journey.



Routledge
320 pp integrated image and text
HB $55.00
Paper $21.00

29 West 35th Street
New York, NY 10001-2299

GUTTING GUTENBERG

SCOTT MCCLOUD IS THIS GENERATION'S Marshall McLuhan—and smart enough not to use print as his medium.

His apprenticeship was served on two books. Zot *was an SF comic of seeming innocence and outrageous futurity, featuring extreme luddites who devolved people back to monkeys and six issues of teen sex. Well, kinda sorta.* Destroy *was two guys in tights and capes kicking the living shit out of each other and greater Manhattan for 32 way outsize pages with about one line of dialogue between them. Sadly, this satire has become the industry standard.*

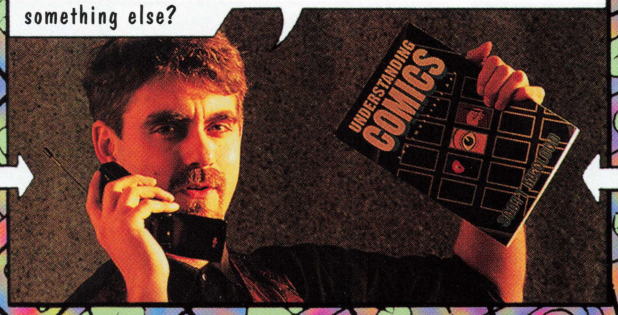
Having laid the groundwork, he pulled out the big one. Understanding Comics *is the definitive semiotic analysis of precisely how comics snag the attention—and he did it as a comic strip. Brilliant. 20 years of pompous RKP academism trashed in an instant.*

Not resting on his laurels, he's bought a shitload of equipment, is translating Understanding Comics *into CD-ROM, and is considering an offer to write software that will teach you how to do the job properly, or even draw your comics for you.*

MONDO 2000 presents a Comic-Conversation
with/by SCOTT McCloud
Conducted by Paul McEnery
Coloring and F/X by Heide Foley

Mondoid Paul McEnery

I had this faint trepidation about how I'm going to be performing when you draw this up — what am I going to look like, what am I going to sound like? Am I going to suddenly become something else?



Product Placement

I'll chose an icon for you, Paul. It can look like you or it can be a personification of **MONDO.**

The anxiety of leaving yourself behind...

Oh, yes. Quite frightening.

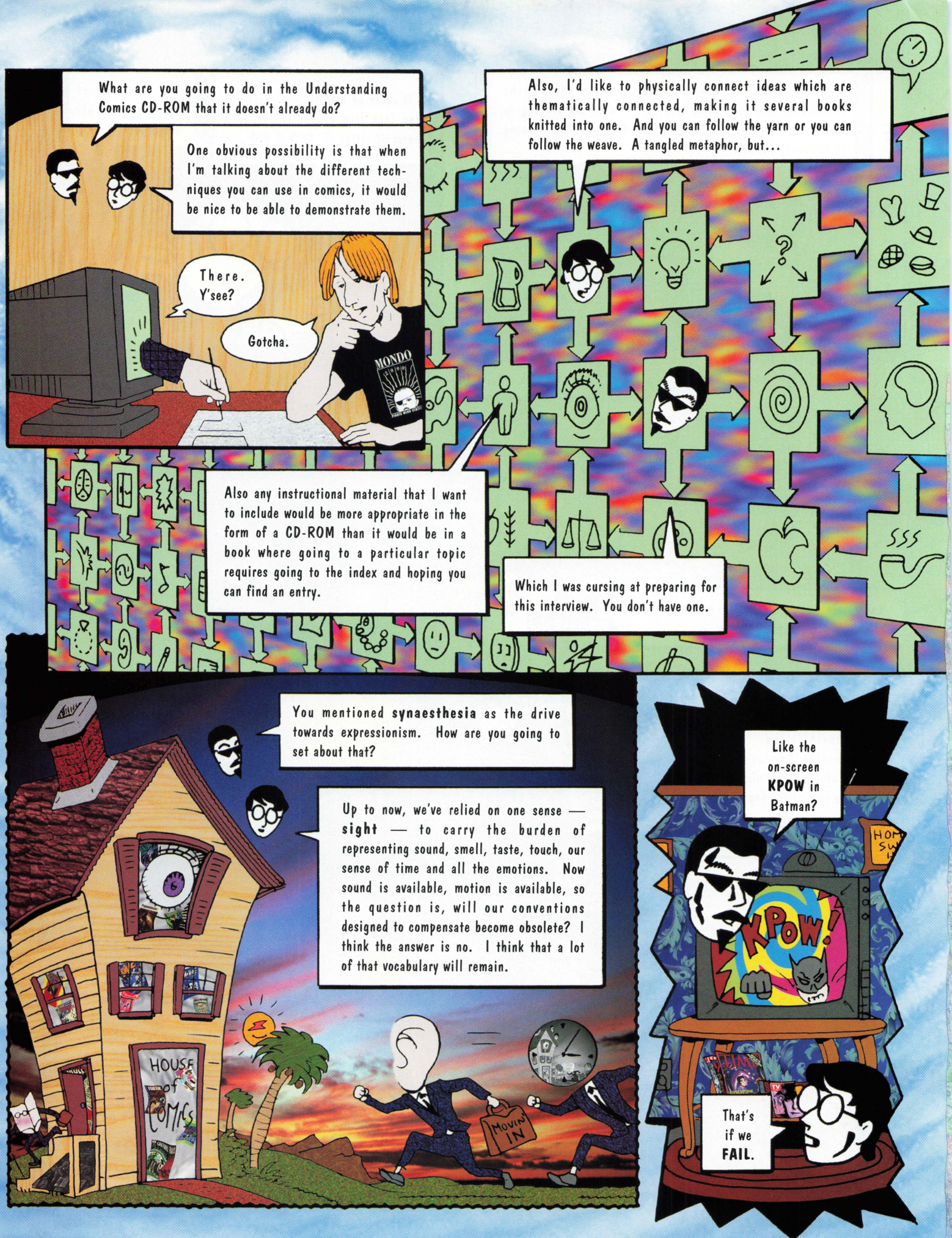
Let's talk about CD-ROMs and what you might be doing with that.

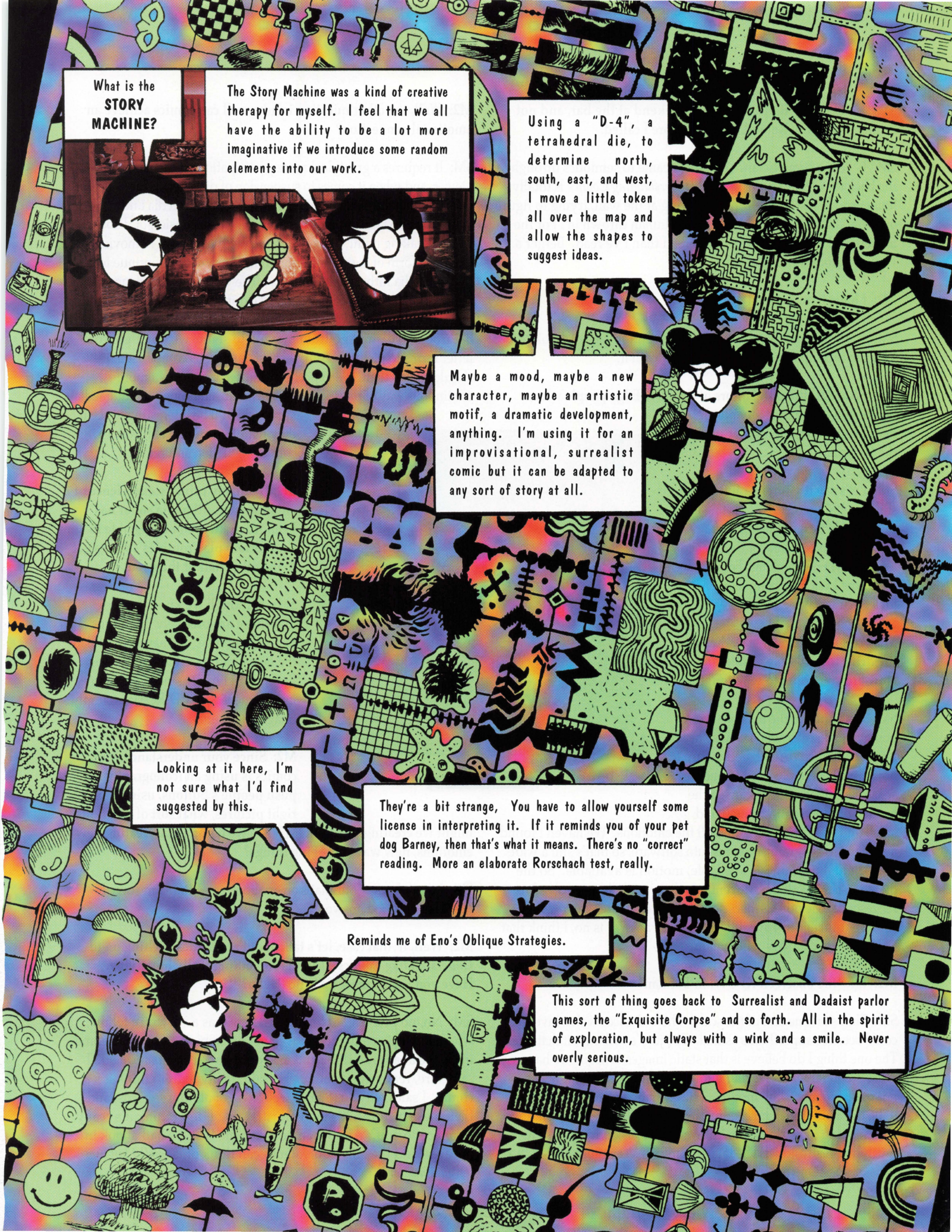
The idea of interactive media in general is fascinating to me, as are the possibilities for the Understanding Comics CD-ROM. Before Gutenberg, comics were not tied to the turn of the page, they were set up in a **zig-zag** pattern...

...or **scroll** format.

NOW- - -→

... as we're getting beyond Gutenberg, that seems like a more natural way to go about it. I'm looking forward to when comics mutate beyond the page-cage and start growing to any length they like. Like a massive graphic snake that can go on forever or split off like a planarian worm, and grow 1,000 tails in any direction.


What are you going to do in the Understanding Comics CD-ROM that it doesn't already do?
One obvious possibility is that when I'm talking about the different techniques you can use in comics, it would be nice to be able to demonstrate them.
There. Y'see?
Gotcha.
MONDO
Also, I'd like to physically connect ideas which are thematically connected, making it several books knitted into one. And you can follow the yarn or you can follow the weave. A tangled metaphor, but...
Also any instructional material that I want to include would be more appropriate in the form of a CD-ROM than it would be in a book where going to a particular topic requires going to the index and hoping you can find an entry.
Which I was cursing at preparing for this interview. You don't have one.
You mentioned **synaesthesia** as the drive towards expressionism. How are you going to set about that?
Up to now, we've relied on one sense — **sight** — to carry the burden of representing sound, smell, taste, touch, our sense of time and all the emotions. Now sound is available, motion is available, so the question is, will our conventions designed to compensate become obsolete? I think the answer is no. I think that a lot of that vocabulary will remain.
HOUSE of COMICS
MOVIN' IN
Like the on-screen **KPOW** in Batman?
KPOW!
That's if we **FAIL**.


What is the STORY MACHINE?
The Story Machine was a kind of creative therapy for myself. I feel that we all have the ability to be a lot more imaginative if we introduce some random elements into our work.
Using a "D-4", a tetrahedral die, to determine north, south, east, and west, I move a little token all over the map and allow the shapes to suggest ideas.
Maybe a mood, maybe a new character, maybe an artistic motif, a dramatic development, anything. I'm using it for an improvisational, surrealist comic but it can be adapted to any sort of story at all.
Looking at it here, I'm not sure what I'd find suggested by this.
They're a bit strange, You have to allow yourself some license in interpreting it. If it reminds you of your pet dog Barney, then that's what it means. There's no "correct" reading. More an elaborate Rorschach test, really.
Reminds me of Eno's Oblique Strategies.
This sort of thing goes back to Surrealist and Dadaist parlor games, the "Exquisite Corpse" and so forth. All in the spirit of exploration, but always with a wink and a smile. Never overly serious.

M2: I feel guilty that I spent the weekend at the bar, and not boning up on my Roland Barthes before I called.

SM: Is he the semiotician? You see, I came to semiotics through the back door, 98% of the stuff in *Understanding Comics* is totally homegrown, just sitting around staring at the wall, trying to figure out how these things work, a little McLuhan thrown in. For the most part, I have a lot more left to read than I've read. Berger's *Ways of Seeing* is pretty good.

M2: I have it on my shelf.

SM: It's a fun one. And it's a sort of a random access book too. You can pick up any page and have fun with it.

M2: So are all the progenitors of the New Edge people whose books you can read at any place? People who failed to master form in the first place?

SM: Let's say it's a trend. But there's still something to be said for linear thought. In fact, I'm using linear means to abolish some of the linear tendencies in my thinking. For instance, right now I just have completely no idea what to say.

M2: You mentioned synaesthesia as the drive towards expressionism. How are you going to set about that?

SM: That's one of the tensions we're going to encounter when comics head into the interactive field, because up to now we've been relegated to one sense, just sight, and it's carried the burden of representing sound and smell and taste and touch, and all the emotions. We haven't found a way yet to program emotions into software, so that's still a wide open field, but sound is available, motion is available. So the question is, will all the conventions that comics have evolved to represent those other senses seem a little obsolete when we can represent them directly? I think that the answer is no, I think that a lot of the vocabulary will remain.

M2: Like the onscreen KPOW! in Batman?

SM: That's on one end of the scale. Those devices we've invented could seem as superfluous as that. The jury's still out on that one. The one thing I do believe is that static images in sequence have a great potential for conveying information for non-fiction which is not really enhanced by motion. I think static images will continue to be the medium of choice for non-fiction. We can have windows with moving images in them but we have to ask ourselves how much that really adds. The fate of comics is very much tied to those sorts of questions.

M2: Well, the other question is how well can comics achieve an emotional connection?

SM: It requires a great deal more participation on the part of the viewer, and when it comes to suspension of disbelief, as far as fiction goes, another standing question is whether multimedia and splitscreen juxtaposition doesn't challenge suspension of disbelief to the breaking point. If from one inch to the next we're moving from one form of communication to the next, do we continue to see that as media rather than as reality. The world we experience, the real world is a continuous world. We don't switch from black and white to color as we walk down the hall from our bedroom to our bathroom, we don't go from moving to static, we don't go from letter forms to pictures—um, that's a dangerous comparison, I shouldn't say that. We expect continuity. Comics is a more continuous way of representing reality than a thoroughly multimedia approach. It'll be interesting to see if they maintain an efficient way of conveying fiction as a result.

M2: Yeah, my primary experience of emotion in multimedia so far has been frustration, not being able to find certain play routines so as to get to the other half of the game.

SM: Although we know for sure that those are precisely the things that will improve. We have to postulate the best of all possible worlds—as I'm inclined to do, since 99% of my involvement with CD-ROMs is simply imagining them.

M2: Since your understanding of comics is using an iconography to push people's buttons, using the right pictures, what sort of emotions might we creating in CD-ROM? Are we going to be creating new emotions, new ways of seeing things?

SM: I don't know. But that's a very good question. I'm sorry I don't have a good answer.

M2: Well, in that case, let's talk about academics latching on to *Understanding Comics*. Tell me something really horrifying. Have you had to meet Camille Paglia?

SM: No, no I haven't. Horror... There was a very nice fellow, who had written a tremendous paper on comics, and he had come up to me at a trade show and asked if I had seen *Sandman 50*. I said sure, really good comic. He said, really, I don't think it's a comic. I said, why? He said, well, it's got all those words, and then these pictures, it's mere illustration. I don't think it's really a comic, do you? And when he asked me that, he had a look in his eyes, and the only equivalent I can think of is *Shall I kill him for you, master?*

M2: My first thought was Pharisees trying to catch out Christ.

SM: Well, it could have been like that too, it was pretty close to both. I quickly reassured him there were sequential images in *Sandman 50* and Neil could live. One of the things that people from university have been saying, who've been talking about comics for years themselves, they've said they've never had a common vocabulary. There were these phenomena that they had observed but there were no names for them, so now they could begin to speak the same language. There's a movement underway now to consolidate all the research that has been done on comics under one roof, and to make sure that anyone coming into the field—say the media or budding scholars or whatever—will be able to access all of that stuff at once, and it's been really exciting being able to be the facilitator of that sort of unity.

M2: Your legacy: a thousand tenures.

SM: Well, they'll still have to publish or perish. Hopefully, it'll also mean more comics. I accepted from the outset that whatever idea structure I could erect would eventually turn into some sort of stifling orthodoxy that the next generation would have to come along and smash. Better to give them a nice big juicy enemy than to leave them in the void. They've been in this void for several decades.

So one of the thrusts of my book is the importance of visual iconography. Nobody's demonstrated that more eloquently than the people who began Apple. We have a fundamentally different form of communication than just chopping up Johannes Gutenberg and feeding him into the meat grinder is not going to give us an appropriate transition from the printed word to the computer screen.

M2: Making hamburger isn't the best way to breed cattle. Up to now, I've never had any success. So how do you manage without layout and interval and the whole storytelling vocabulary? And without control over where the reader's actually going?

SM: We have to relinquish that control willingly, and realize there's joy to be had in allowing that choice. And we have to let many little darlings go. Many of the layout conventions in comics evolved due to the economy of space. We couldn't let comics go on till they were a thousand pages long so those little tiny panels were all crowded in. It'll be interesting to see what changes in layout occur when we have enough memory theoretically to expand those comics to enormous lengths.

M2: Self-indulgence springs to mind.

SM: There are still reasons to have panels side by side in juxtaposition. Not all of that will go by the wayside, but some of it probably will. One of the biggest questions is whether comics themselves will survive when sound is available, when motion is available. Will there be any reason to apply static images in sequence to evoke the five senses with just the sense of sight? I think it will, because all media are defined by their limitations. When someone decides to score a concerto for strings only, or does a silent film, they are perfectly aware that they had the opportunity to expand their palette but they chose a limited palette because they found the results interesting.

M2: What are your first intimations of the new form?

SM: First, go to scroll. Second, probably expand the size of the images, since my viewers will do that with or without me since they'll have that option. Third, allow for choice, because it's one of the most exciting things we can do in interactive is to allow for different directions of reading — and of course, begin to incorporate the various effects we can introduce with the various illustrator programs. Especially adhering to truth to material and trying to find the intrinsic qualities in the software. Which are not simply trying to ape what's already been done with pen and with paint, but go for the effects which come out, even if it's inadvert-ently created by these first baby steps towards electronic picture making. I'm a fan of electronic music that sounds like electronic music, that doesn't sound like orchestras and electric guitars. [*Hey Scott, what does "electric guitar" sound like? —eds.*] Things like Hindemith's *Triptonium* or some such instrument, Edgar Varèse, *musique concrète*, that sort of thing. I'd like to see that same attitude.

M2: You mean, reforming our idea of a sound — what's an acceptable sound?

SM: Yes, and eventually the way Cage told us we would, that everything we hear is music, and realizing that all of the sounds in our environment are music.

M2: How do you apply that to CD-ROM comics?

SM: Importing a whole world of visual iconography. We've really only accessed a tiny slice of the world of visual iconography in comics. That's true with paper and ink, and it'll be just as true with computers. To me, the entire history of comics to date is a little colony set upon the edge of a continent, a little colony a few miles wide. We have this huge vast unexplored continent of possibilities so we really ought to head west and see what's out there. M2

This is a review of interactive media for the home. At one point, it was itself an interactive review. You could enter it at any point, then follow your inclination in any direction that appealed to you. But now it's been rendered down into print, and I've taken that choice away from you. Images which used to stand free and clear have been artificially embedded in a thick veneer of argument. You have no choice but to follow the linear progression. Which brings us to history.

The art of the 19th century was the novel (+ a lot of dodgy paintings). The art of the 20th century was the movie (and a lot of interesting paintings). Whatever turns out to be the art of the 21st century, it's going to have to swallow up the supplement, because nobody makes paintings any more. While it slipped slow poison to the picture, Dada asked us two questions. Do you want to die? Do you want to create? Sixty years later, Punk translated the two questions for us. Do you want to be a consumer? Can you play bass, 'cause our bass player just OD'd? 21st century—sorry, "late"—capitalism had to come up with a different question, one which elides the contradiction. Have you got Mortal Kombat, 'cause my mom won't let me have it in the house?

To put it another way, interactive media swallow whole the issues of consumerism and creativity, then turn around and sell its re/undeconstructed form at top dollar, brightly packaged, shrinkwrapped and pre-obsolescent. But not to be too maudlin over splashing lactates, let's check it out, this state of the art.

BY PAUL MCENERY

ILLUSTRATION BY CARL DUNN

Kids, try this at home!

ECO-WARS

"For all humanity I make one wish: let the people die off faster"
—sample pinched from "desensitized" by Pitchshifter (Earache).

For the home market, there's a whole new trick. A tracer bullet is good because it's *green*. You can shoot 'em up as much as you like so long as you're *saving the planet*. And it's not a game anymore—it's an interactive movie.

And that's the setup for **Quantum Gate** (*Hyperbole*). The world has gone to hell in a handbasket and unless you do something about it in, ooh, the next 48 hours we're all fucked. What bothers me is that this is what passes for optimism these days. Anyway, lots of live-action footage with *real actors* with Equity cards and everything. Your major weapon is your tongue and your native wit as you wander round space stations trying to get around bureaucrats who naturally want to stop you from getting anything done. Naturally, if you get it all right, you *can* go to other planets and retrieve the elements you need. And naturally, it isn't enough. Because there *has to be a sequel*. Ah, it's the story of my life.

Ditching all pretense of maturity, **Jumpraven** (*Cyberflix*) is what you get if you take **American Flagg** and **Robocop** and remove most everything but the guns. Anarchist terrorists have nicked a bunch of monkeys or something from the zoo, which gives you the excuse to get out there and blow them away. Interesting wrinkle: the so-called *Cyberpunks* are Wall Street smartasses who want to blow *you* away. The game itself is just **Defender** played out in city blocks. The fun stuff is *going shopping*. Not only do you get to buy your ship, your lasers, your smart bombs etc. from a QVC-styled shopping channel, but you have to choose a copilot the same way, because you can't fly this one alone. Your problem is all your options are either ecofeebs or trigger happy nazis. As soon as you take off, they start nagging you to take over the gun turret, and then they shoot everything in fucking sight! Aaargh! Brilliant. And no qualms of subtlety in **Critical Path** (*Mechadeus*) either. You're butch, beautiful and you wear a beret. Oh, you wish. Actually, you're a useless crippled wanker. You've fucked up on your mission and the evil General Minh (!) has locked you in a tower with nothing but the corpse of your copter pilot for company—er, and a book of clues and a radio. Yes, you're Richard Crenna in the rôle of Rapunzel. Coming to the rescue, a differently-chromosomed Rambo. And, from now on, every time you screw up, she gets blown to buggery. A simple and direct scenario with live action footage, plenty of loud explosions and next to no socially redeeming value—except for the new slant on "Do me" feminism. Fuckin' A.

ONE TRACK CARTRIDGE

The future of the arcade game—and the most likely VR for the home—is the hyper-pituitary offspring of Nintendo and Silicon Graphics. Since we all know (*Game Over*) that Nintendo has *already* taken over the world by sinister means, we can breathe safely. **Project Reality** is the first toy using **Reality Immersion Technology**. It provides real-time 3-D worlds in the home, using a scaled-down **Onyx** computer to drive a cartridge based system for under $250, or so they say. Arcade version for 1994, and you can wrap one up for the children come 1995. And when I say "scaled-down Onyx" I mean a **MIPS Multimedia Engine**, with a chip-set consisting of a 64-bit MIPS RISC

Critical Path and Quantum Gate (both Windows only) distributed by Media Visions, 47300 Bayside Parkway, Fremont, CA 94538. Phone (800) 845-5870.
Jumpraven (Mac) distributed by Paramount Interactive, 4 Market Square, Knoxville, TN, 37902. Phone (615) 546-1157.

microprocessor and supercharged graphic coprocessor. The hardware storage capacity is 100 MB of data per game.

"With Reality Immersion Technology, video game players, for the first time ever, actually become part of the game itself"—it says here. All of a sudden, I'm concerned. Does no one remember that old Star Trek episode about the virtual war? In order to keep the peace, each side accepted the virtual hits of the electronic game, and casually executed their youth. Well, nothing new there, I suppose. And come to think of it, just think of the dollars saved on basic training. Hmm. And you could get them to self-finance, into the bargain. You could get all those ghetto boys off the streets on a guns-for-arcade-tokens scheme, and then...

Nice one, Uncle Sam.

Nintendo, 4820 150th Avenue, N.W. Redmond, WA 98052. Phone (208) 882-2040. Silicon Graphics, 2011 N. Shoreline Boulevard, Mountain View, CA 94043. Phone (415) 960-1980.

READS ON WHEELS

It's been a year or so since *Verbum* went down in flames. Now there's a host of new digizines moving into the neighborhood. ***RAD*** from Japan, ***BLAM!*** from New York, ***Mindvirus*** from Adelaide, Australia. ***Chaos Control*** from Rhode Island was first on the block with a regular Hypercard round up of techno-industrial music, and they deliver the zine over the net as well as on floppy. But the guys with the most cheek are ***Substance Interactive*** from San Francisco.

Describing itself as "like MONDO, but more tangible," Substance is a pop-up book for (more-or-less) grown ups. It's a digizine that plums the archival possibilities of the medium with an exhausting overview of all things Ambient (147 reviews with a whole bunch of 60 second samples). These are scattered over five different planets. You click on the big swirly pink marble and your spaceship, a squidgy golden eagle, tries its hand at interstellar parallel parking. A friendly alien makes you welcome and introduces you to some peculiar local animals—like the brothers Hartnoll and Stephen Kent, the didgeridoo player. They tell you a bit about themselves and play you a little tune.

Back out in the home page—it's hard to shake that print metaphor—there's more obligatory drug—sorry—youth culture references (a bouncing smiley, if you must know, and, erm... a big bendy green thing called the stalk that you move round the screen and let it do a little dance while it raps to you), some short Art Movies with vicious political sting, and one more impossible thing before breakfast. With a bit of animation, and a lot of heavy deconstruction, they've made **13th Gen** (Neil Howe and Bill Straus) interesting.

The whole deal is mostly point and click, but sometimes you get swept up into a really repulsive (and exclusive to *Substance*) loop. In sensuous black and white, supermasochist Bob Flanagan gets pierced in the kidneys by big metal coils then fed through the meat grinder, for instance, and Trent Reznor of Nine Inch Nails takes the long drop at the end of a rope. Prometheus Bound indeed!

Substance (PC only; $75 subscription for 4 issues, distributed by CCIC in Japan, Sony everywhere else), 444 Grove St, San Francisco, CA 94102. Phone (415) 626-2147.

Also treading on our toes is ***Mindvirus***, with an interview with Terence McKenna and a great deal of muttering about memes and mutation. As far as I can tell, unless you have Macromedia Director cluttering your hard disk, the little phucker just doesn't run, although to be fair, at least you don't need a CD-ROM drive to play it. When it does run, you get a Marvin the Martian lookalike grunting "Loading" at you in Australian, and then directing you to click on a swirly pink marble. Sometimes shiny gray correct anatomy shows up on the tour guide. Bonzer! What follows is sophomoric presentation of ideas you've already heard, but with extra electronic farty noises and very bright colors and letters fading in and out. Which is all we really want from multimedia, after all. Except another issue, of course.

Mindvirus (Mac only), ANAT, PO Box 8029, Hindley St., Adelaide, South Australia 5000; mindflux@apanix.apana.org.au

RAD has that peculiar Japanese interest in all things Western. It's got impressionistic club reviews, a total sensory barrage of brilliant color, flashing instant images too quick to be assimilated, and it's got Timothy Leary. There's a blue movie section; it's blue and there are teeny tiny film strips that quite possibly contain pictures of naked people; there are obscure movie clips, and there's Vujak. The interface recomposes before your eyesand to get to the different "articles," you click on a swirly pink marble and *quelle coincidence!* RAD's logo, just like Substance's logo, is the Eye-in-the-Pyramid. This means one of three things. They're all Freemasons. They all want to make a ton of cash. They're all Robert Anton Wilson. Take your pick.

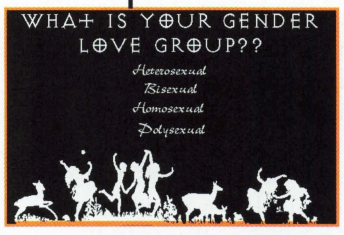
RAD Unit Production (Mac only; $30.00 per issue, available only in Japan at present), Ohta-ku Nishimagome 1-16-18, Tokyo, Japan 143. Phone (81-3)-3772-1748.

These digizines occupy an entrancing middle ground between print and Saturday Morning Cartoons. This is eye candy with a teen sensibility. This is documentary without the author. Best of all, this is MTV without Kennedy. I love it. I'd like to invite it in for tea and scones and introduce it to my mother. But when it comes to multimedia, don't believe the hype. Interactivity is still miles away from participation. M+2

We would like to thank Kai's Power Tools for the swirly pink marble idea, and now could they come up with another one, please?

The Jeopardy of Interaction

What is the NEA Agenda?



A Devil's Advocacy group. An entrepreneurial innovator of manipulative software, subliminal semiotics and coercive advertising.
What is *Necro Enema Amalgamated?*

Like the National Endowment for the Arts—to give money to people ("*artists*") to prettify the world with their creative energies. Like the National Educational Association—to give shape to the nation's educational policies—see our forthcoming review of *Toilet Training the Retarded* for a taste of what's to come.
What is the purpose of the NEA?

The NEA's flagship venture. A hypermedia explosion that concentrates bad energy, good looks, big muscles and a small mind into one CD-ROM. What St. Paul did for Christ, what Edie Sedgwick did for the mini-skirt, what rats did for the plague.
What is *BLAM!*?

When the Catholic church nominates some virgin stiff for beatification or canonization, the duty of the *advocatus diaboli* is to raise objections and examine the facts. The cadavers of true saints don't rot. The Devil's Advocate might demonstrate that however impervious she may have been to the charm of the phallus, Mother Superior can't help but spread for the worms.
What is Devil's Advocacy?

The whole idea of exploring digital space has been grossly used. Few have risen to the task of conceptualizing the role of *time* in digital media (except *capitalists* who have invented *connect time*). We have rediscovered the lost continent of cyberspace—the fourth dimension. "Speed," Sun Tzu says, "is the essence of war."
What happened to cybertime?

A euphemism like *democracy* or *equality*. Giving a user more and more buttons to click is like giving extra links to a dog chain. We are *programmers*. ***BLAM!*** trains you just as Pavlov trained dogs to salivate. *Cyber* comes from the Greek *kybernan*, meaning *to steer, to govern.*
What is the absurdity of *interactivity*?

Foster Goodwill loads *BLAM!* and *follows our instructions*. The interface appears and turns the sound on his computer up, up, up! He chooses to read *This is Your Final Warning!* by *Th. Metzger*. He doesn't finish before he tries to quit out. Surprise! The NEA *insists* you finish. Goodwill is thrown into a special punishment supplement—an epic poem about Spam. He can't get out of it without *crashing his computer.*
What is the textbook for user manipulation?

Goodwill tries *Fever*, by Rita. At first it reminds him of a Japanese cartoon. The animations of a young girl crying in the bathroom kind of turn him on. He likes the interactive feature. *Click my cunt* to go forward. Is that the only option, forward? He reads the *Ode to Interactivity*. It's not in the least interactive. Is this some kind of joke?
What is irony?

BLAM! is not immersive, it's expulsive! We don't wait for you to push our buttons, we push yours first.
What if you had a choice, but it was between two equally terrible alternatives? M2

BLAM! ($24.95, distributed by Voyager), P.O. Box 208, Village Station, New York, NY 10014. Phone (212) 979-6052. Alternate versions of this article available on request.

by
Keith Seward
&
Eric Swenson

Amaled to Death

by Paul McEnery

What has become depressingly obvious is that there are only two types of monopoly money—dollars in diapers, and dollars in uniform—and when it comes to location-based entertainment, military and juvenile desire have the same game in mind.

SUNK WITHOUT A TRACE

Or then again, maybe the infusion of dollars into play can only make a certain sort of game work. Obvious problems with **Iwerks'** new Loch Ness adventure indicate a resistance that inheres in technology.

You can't fault it for immersion, but dropping six people into murky Scots water in a cab is a hell of a way to make friends. Then to tell them to do the ecologically sound thing—*coöperate* to save Nessie's eggs, without so much as a torpedo in the turret—it's all a bit much. Okay, so you have to fight off some bounty hunters armed with glop guns, which sounds far too Bugsy Malone to me, but I can't help but feel that the real competition has got to come in before you even start. Crippling your brother so you get the command post and the guns and he gets stuck with the retractable arm. Now that's what I call fun. Non-competitive games are for school teachers in Birkenstocks, and that's all I have to say about the subject.

BEST OF THE VEST

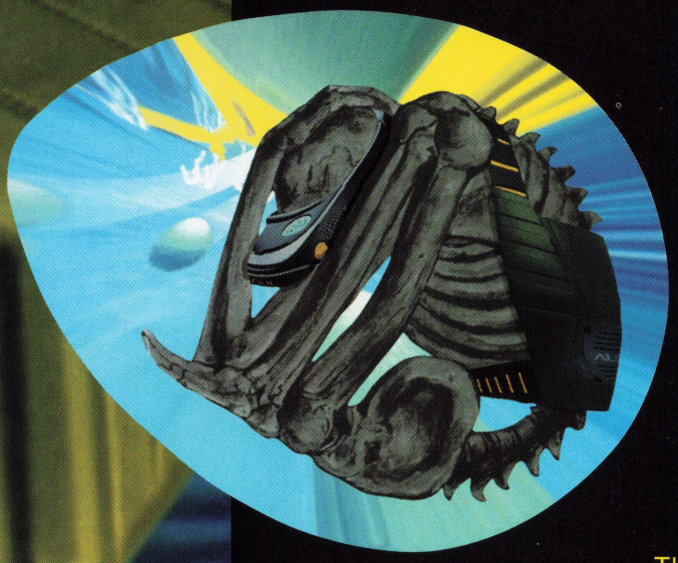
But hey, that's only wetware, and wetware is for weeds. Real men want to know about really cool *vests* like Buck Rogers might wear to stop interstellar bullets. The **Aura Interactor** is extrapolated from the amplifier that makes you go boom at **Luxor**—and they claim it will work as a peripheral to every video game system, and even your TV. "Crank it up, and you'll feel everything from the boom of a hard-driving music soundtrack to the thump of a hard uppercut to the jaw." Yes, it's a vibrator for men. No, really. "A lot of people like a massage when they're tired at the end of the day. This can also be a massager." The mind—at least—boggles.

Aura Systems Inc. has been very careful about this. "It's the only way to get voltage out of the wall and get the force at low power—so you don't cook the kid." And the frequency band is around 20 Hz to 350 Hz, because "internal organs vibrate at about 7 Hz, so we don't want to be operating down there... we don't want to get anybody sick." Hey, lack of ambition! This could be the first apparatus that when you fuck up in the game, it actually fries you. Too bad they're chicken. Considering the product came from trying to blow up Russkies in outer space.

Aura Systems Inc., 2335 Alaska Avenue, El Segundo, CA 90245. Phone (310) 643-5300.

TRILLION DOLLAR TOILET SEATS

Russkies or no Russkies, **Avatar** and **RPI** are still selling to the US Army. The new interface is the Dismounted Infantry Virtual Environment (DIVE). Cute. It tracks "key body joints of an immersed soldier without tethers, body suits, or other restrictive equipment." Like a mind of your own, no doubt. "Intelligent agents which respond to human voice commands to *simulate* an entire squad or platoon under the leadership of a DIVE-immersed human commander." My italics.



DIVE includes real time image generation, so your unit and the enemy turn digital and get dropped into a virtual landscape. This leaves Paintball in the dust, for sure. And it short circuits all that training sergeant abuse. Simulation makes gooks of us all.

RPI Advanced Technology Group, P.O. Box 14607, San Francisco, CA 94114. Phone (415) 495-5671.

SEMPER HI-FI

Swords into plowshares my ass! If we've got a flight simulator we haven't got any further use for, let's palm it off... er, convert it to civilian use. **Top Gun's Virtual Fighter** is an F-18 fighter simulator. It's designed by Greg Gustin, a Marine Corps pilot with a reputation for building high fidelity flight simulators for the military, and the hardware comes from some other battle simulators kicking around outside the welfare office. "Dare to face the danger of dogfighting enemy fighters that are controlled by computer adversaries, or *flown by your friends.*" Yeah right. Get this, buddy. These are *all* shipping to Japan. That's right. We took it *up*

continued on page 60

Georgia Rucker

HARDWARE—THE NEXT GENERATION

W-Industries has ditched Horizon and are now trading in the states as **Virtuality Entertainment Inc.** They've totally upgraded the hardware and halved the price. **Virtuality—The New Series 2000** still comes in two versions, **2000SU** (Stand Up) and **2000SD** (Sit Down). The two big changes are that they've gotten the weight off your back and off your head—no back pack, and *5 lbs.* off the visor! The **Visette 2** is sophisticated, quick to put on. The graphics texturing and resolution are finer. You can adjust the distance from the eyepieces inside the helmet with individual focus for each eye. And the full stereo sound is hugely improved.

That's the good news. The bad news is that there are only three new games to go with it. One is a souped up asteroids called **X-Treme Strike**, and there's a hitteminnaface boxing match ("All damage to the opponent's face is delivered in glorious full textured detail—flying gumshields, swollen lips, bent noses and blackened eyes!").

The game with promise is **Zone Hunter**—"An urban walk on the wild side!" Not the gender-bending experience you might hope for; in fact, rather the opposite, but it's still pretty neat. Your maze is the 21st century city, your enemy you have to reach is the genelab that's churning out hideous mutations, cyborgs and other unnatural humans. And you get to crawl through alien infested sewers. Are New Yorkers flushing aliens down the can these days? And speaking of New York, this 2-player game gives you the option of cöoperation but, what the hey, you can give your partner up to the mutants and grab all the glory for yourself. After all, it's only *virtual* betrayal.

the ass in Pearl Harbor, and now we're *training them to do it again!* And now you don't even *have* to get into a cab to experience it! You can play the game *over the phone! Wheren't there enough Kamikaze pilots as it was?! It's the Gulf War all over again! First we sell the ayrabs the goddamn missiles, and then...*

I'm sorry. These military simulators give me a rush. But I've got to tell you, they're setting up international dogfights in there. The revolution might not be televised but World War III certainly will be.

And there's a shitload more of them. **Thrustmaster** (yes, I know) has an F-16C fiberglass cockpit, featuring true HOTAS flight. It actually stands for Hands-on- Throttle-and-Stick, but I really don't think that's any improvement now, is it children? Strangely, this is supposed to compensate for that rocketship ride in front of the grocery store that breaks every time you try to get into it because you're too old and fat now. Since we don't have a space program anymore, I suppose.

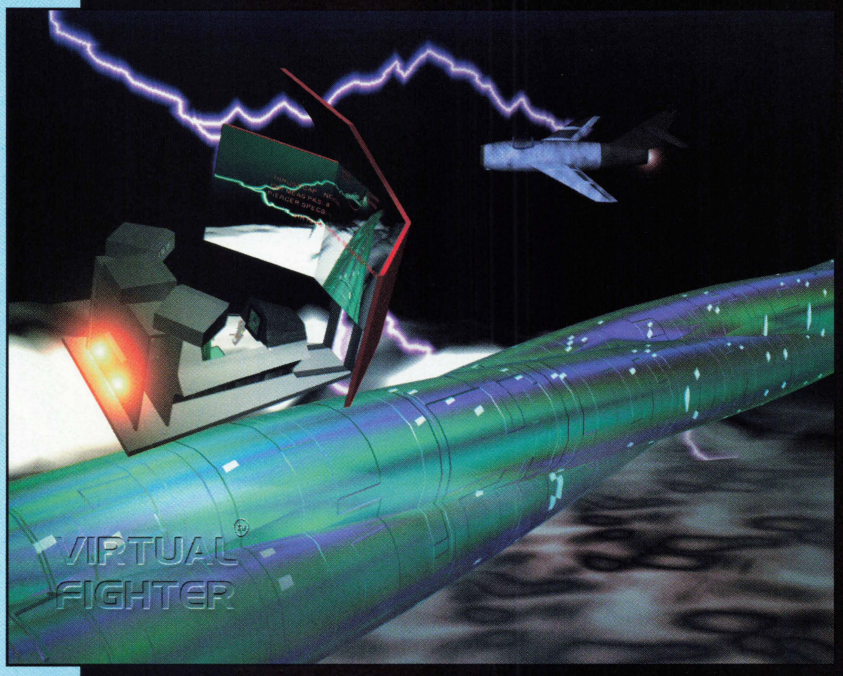
And one more thing. **Domark** will be bundling **Flying Nightmares** (quite) with every new PowerPC Apple put out. "The programming team is the same group that designed the original military simulator for the HR1 Harrier... over 15 years ago." Oh well. I can't imagine dawn raids of Jump Jets any day soon, anyway.

Top Gun Entertainment, Inc., 3851 East Colonial Drive, Orlando, FL 32803. Phone (407) 896-0212.

Thrustmaster Inc., 10150 S.W. Nimbus Avenue, Portland, OR 97223. Phone (503) 639-3200.

Domark Software Inc., 1900 South Norfolk Street, Suite 110, San Mateo, CA 94403. Phone (415) 513-8929.

I've just got one message for you guys at Iwerks. Think it over. Give the kids what they want—ammunition. It's American, it's constitutional, it's the way things were meant to be. Let's *hunt* that big green sucker. High points, and you can mount its head over the mantle. M-2



EXPLORING FURTHER

Garage Virtual Reality—The Affordable Way to Explore Virtual Worlds
Linda Jacobson. Sams Publishing, Indianapolis, IN, (800) 428-5331, $24.95, Paperback, ISBN: 0-672-30270-5, 439 pages.

A comprehensive do-it-yourself VR design package for the budget-conscious that includes a PC version of the *Virtual Reality Studio I* plus source code examples of Power Glove programming, head-tracking displays, and sample VR worlds.

Mood Induction Techniques—For Virtual Reality, Multimedia, & Software Developers
The RM Research Group, Carlsbad, CA, Vox: (619) 747-7299, $129.00, 180 pages.

Theory and techniques to deliver your brainwashing... er, experience to others, drawing on research in Mood Inductions, Entrainment, Immersion, Ideodynamic Response, Presence, Mystic Experiences, Capturing and Maintaining Attention, and much more.

Multimedia 94, Metropolitan Toronto Convention Centre. 7-70 Villarboit Crescent, Concord, Ontario L4K 4C7. Vox: (905) 660-2492. Fax: (905) 660-2492.

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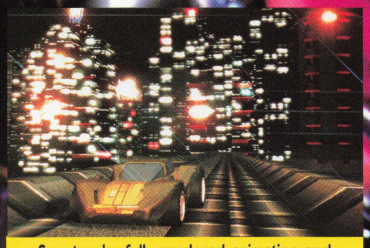

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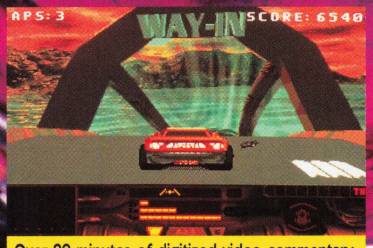

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MEGARACE™

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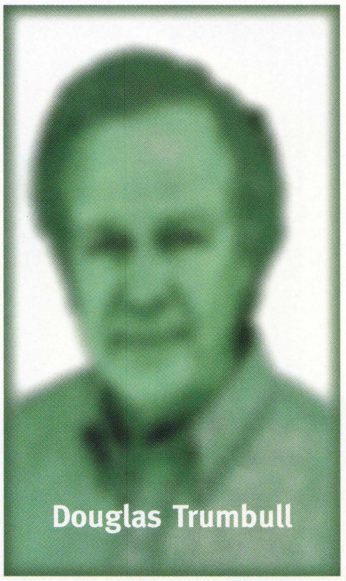
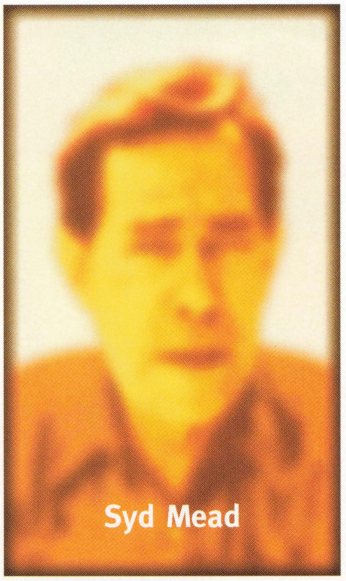
Mr. De Palma, Can We Sell You a Plot in Florida?

Syd Mead and Douglas Trumbull in conversation


Douglas Trumbull


Syd Mead

Jas Morgan and Paul McEnery experience an irritating buzz in the left ear

Illustration by Jordin Isip

If you're looking for someone to blame, you might as well make it these two. They're responsible for what the future looks like after all. But some people can't be satisfied. Douglas Trumbull (2001, Silent Running, Blade Runner, Brainstorm) *is busy moving the goalposts of Location Based Entertainment at Luxor and has several more irons in the fire that are so hot we don't dare pick them up) Syd Mead* (2010, Blade Runner, Tron, Aliens) *is working with* everyone—*Peter Hyams, director of* Time Cop; *Robert Longo, avant garde eventmaker-gone-commercial director of William Gibson's* Johnny Mnemonic; *Minneapolis VR start up company In World; the* Yamato *aka Starblazers project; and freshly-shrinkwrapped-at-your-game-store* CyberRace, the *hot new game from* CyberDreams.

PARK YOUR PACEMAKER AT THE GATE

M2: Xandor checked out Luxor. He had one comment to make. He was very grateful he wasn't using any psychoactive substances or he could have had a very scary experience on the first ride. Have you made adequate safety provisions to prevent people getting heart attacks?

Douglas Trumbull: No, if you have a heart attack, that's your problem. It stops automatically if someone gets off or unfastens their seat belt or screams. The vehicles are being supervised constantly by infrared video cameras.

M2: You'd have to get pretty darn cold before the video cameras figure out that you're dead, wouldn't you?

DT: [*laughs*] Well, these are the fully rotational type. This is a new motion based ride with hemispherical screen—a substantial improvement over the Back to the Future ride.

M2: And Syd, how was your involvement with CyberRace?

Syd Mead: My involvement started with a poster that I'd done called *Spaceball*. It involved a dedicated sphere in space where people could race around a form of freeway. Pat Ketchum saw that and he liked the surreal spherical gravity and the triangular sled that I'd thought up. Then we thought up the story, a combination of role-playing strategy games, and eventually actors and a screenplay. As the game developed, I'd be in and out of the process. I eventually ended up doing the packaging and the design.

M2: You've talked about game tech being the next generation of entertainment in the story form. And Doug's quit Hollywood. Is that right?

DT: Pretty much. I've felt that the Hollywood industry hasn't been keeping up with the potential changes in the medium. You can make movies in the existing format, as we have all done together, but the future of the cinema—and alternative film formats or VR or 3D or simulation—are all happening outside of the movie industry in the new entertainment centers, theme parks and expositions. That's where you really get a chance to experiment with the medium.

THE MERCHANDISE IS THE MESSAGE

SM: And in the film industry, the sensibility is there to know that something has got to be done. Now there's simultaneous release of the games or other versions of films—they shoot several performances at once. They shoot different footage which then becomes the raw material after the fact or during the actual film. You now have the experience to put that over or download that to a different format so the customer can now experience the merchandise *and* the memorabilia and essentially take it home with them.

If you have a heart attack, that's your problem

DT: It's sort of like you can look at the movie in the theater, you can be inside the movie in a ride, and you can interact with a movie in a game. Three products in one.

SM: In the theater business, box office receipts are going up, but they're very aware that they have to create a public experience that is not duplicable in any way, which Doug has been doing with his seven story screen at Luxor in Vegas.

M2: It seems to me that movies have become part of the marketing stategy for the merchandise.

DT: What they're looking for is every conceivable market that might be available to them to maximize not only the product itself but also to fully utilize the international advertising campaign that is costing as much if not more than the movies themselves.

SM: What fascinates me about the video game market is we now have the equipment to create a moving visual experience and the people that are doing it now have a mini studio, a casting director and a designer, a storywriter, and create a very nice experiential product. The old professions all become active.

BETTER THAN BLOTTING PAPER

M2: I'd say *Brainstorm* is one of my favorite films of all time. I'd like to ask you a few questions about that. Were you aware of early forms of VR technology when you were going into that project?

DT: VR is not a very new idea. It previously had different names, like telepresence, things like that. And I was aware of projects that the Navy was doing many many years ago, and the Air Force, for remote viewing and 3D tracing devices. That's been going on for nearly 20 years.

SM: Mainly as a design response to physical problems in fighter planes.

DT: A lot of research that I've read about has to do with human physiological responses, brain responses, devices for eye-tracking, devices for sensing psychological states where you can actually cause a cursor to move about the screen just by willing it. Devices for implanting things into the human brain for artificial sight, artificial hearing—I keep my eye out for all that stuff.

M2: In the light of what's happened in technology, how do you feel that it's aged?

DT: In terms of entertainment, we're still scratching the surface. We're still in the demonstration phase, the exploitation phase, and not looking into the deeper possibilities of human experience and emotional experience and provocative and transformational experiences that people can have by virtue

of being able to see things from someone else's point of view. An experience that takes them beyond ordinary everyday reality. What I've seen so far is still pretty glossy. Some of the emotional and personal aspects that I was trying to deal with in *Brainstorm*.

M2: How do you think we might go further?

DT: I'm seeing that there are some serious limitations to the display systems and methods of interfacing with human senses, whether it's eye cones or ear phones or whatever, and I really do believe that it is possible in the not too distant future to directly implant visions or images directly into the human mind via some technique. Sort of like what *Brainstorm* was about. I don't think it's that far off.

SM: I was reading that they can now pick up some specific brainwave, or spike, so the physically handicapped can run machines.

M2: What was the influence of Durk Pearson and Sandy Shaw?

DT: Well, Durk and Sandy acted as consultants to connect us with sources of people who were studying human brain interface survival, using superconducting magnetic sensing systems and magnetic resonant imaging. And Stan and Christina Grof I met before that project, and we took most of the principals and some of the crew up to Esalen where we experienced the holotropic breathing techniques.

UNTAPPED VR?

M2: Doug, you talked about VR, and Syd worked on *Tron*, which is *the* proto-VR movie. Have either of you got any plans to work directly in VR?

DT: I have a very broad definition of what VR is. I would guess that most people think that VR is a head mounted display of some kind and an interface to a computer generated image—which is all well and good but it's so crude and prosaic. It's very very difficult to generate photo-realistic images in real time. The resolution is very low, sort of at the Pong level.

There's a whole untapped area of VR where it's not actually necessary for the user to interact. If you get rid of the interaction so you don't have to generate images in real time, then you can use computer technology and photographic technology to create images of absolutely striking photo-realism in 3D.

There is some kind of threshold where you cross over into the audience's inability to deny what is going on

You can deliver an extremely personal and powerful experience that's hundreds of times more powerful than the VR experiences available today. It's an experience that can be controlled and delivered in a relatively short period of time with a powerful content and conclusion.

So there's that aspect of VR that makes it possible to make a great entertainment or a transformational experience in a very short period of time in a very profitable way. Currently, VR as an entertainment form is not profitable.

ABANDON ALL HOPE...

SM: There's a threshold. The company that produces the experience and the user sort of enter into a contract. A contract where you negotiate what you're willing to accept and the reasons for accepting it. Then the state of the art of formats becomes your product platform level of accomplishment.

You mentioned to me before, Doug, how little assistance the brain needs to get sensory input (seeing inside of our skulls in total darkness), and how little you need do to encourage the brain to believe what it's being shown, because the resolution threshold is very high in one part—sight—very low in audio or physical motion. Boost those up a bit and you increase the reality satisfaction by enormous amounts.

DT: And I think there is some kind of threshold where you cross over into the audience's inability to deny what is going on. You do, in fact, grab them by the collar and jerk them into your movie whether they're ready to go or not.

SM: And in the back of your mind, you've walked into this place, you've bought your ticket, you know it's not real, but you have to believe finally your sensory signals.

I've had the opportunity to visit Boeing in Seattle, and of course you're in a real cockpit and they use hydraulics. I tried to land a 747 and I ran into the ground. You actually sweat. It's very, very real. And it's not the picture presentation, it's that the experience is thoroughly immersive, and I didn't really analyze why. I think you can force that level of involvement to get you in that contract with the product. Put that into a variety of formats and you'll have a good product.

DT: I also think reality is an interesting subject because I think we are all immersed all day every day in reality. What we really seek is superreality, or *hyper*reality or altered states of some kind. I think the attractions in this area that are going to be the most successful will be the most extreme states or out of body experiences.

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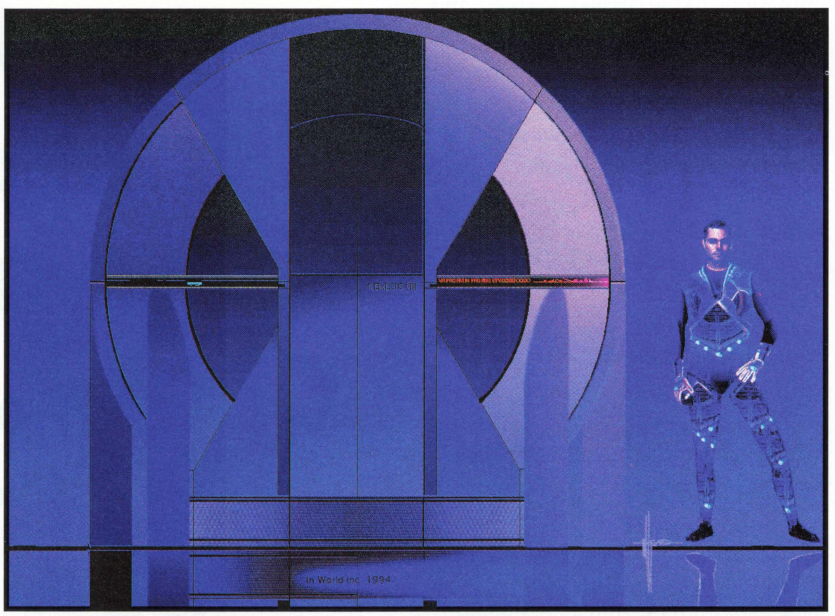
YES, BUT WHAT ABOUT VR?

M2: Have either of you got projects you'd like to do in a VR format?

SM: To me, working with VR projects is to reproduce a personal choice of environment, characters, your imagination. I suppose it's become very close to dreaming in color. Which, right now, I think, is the ultimate VR anyway.

Entertainment is essentially user-driven by choice. As techniques get better, you'll have a script that you can flesh out with design, and interactive formats which you can transport from worldwide information networks in a competitive trade. Eight users can design the environment as it runs.

M2: So you're envisioning something which escapes the control of the artist and falls into the hands of the people.



The Hanger* (In World), *a "Lawnmower Man" styled full immersion VR unit with development and game design input from Syd Mead, ships mid 1995. Full body suit developed by refugees from the Hit Lab. In World Inc,. 222 So. 9th Avenue, Suite 290, Minneapolis, MN 55402. Phone: 612-333-5629.

SM: But that's what happens anyway. Music, artwork—people see it and they graduate at various levels of accomplishment. And the professionals are the guiding light and target, and the populus carries along, continually upgrading the expectation level.

DT: I'm making a personal transition to the world of computer graphics as a design tool because you can use these techniques to create your own world. And that world could be a movie that you want to produce. Or you could actually pre-experience the movie—the entire design process, the shooting process, the editorial process—and work all the bugs out before you'd have to commit to the production.

M2: Does that mean that now that you've got the controls yourself, you'll go back into making movies?

DT: I'm very interested in making movies. I *do* make movies—it's just that I'm not interested in making movies for normal theaters. The 24 frames per second, 35mm film format just doesn't turn me on anymore. My interest lies in alternative formats and more immersive experiential situations. So if I could make a movie in IMAX or OMNIMAX or Soledo or 3D or Show Scan, that'd spark my interest.

GIVING AMERICAN JOBS TO INSECTS

M2: How do you find changing the output—using LBE or games—changes your work process?

SM: You start the same way. Draw the characters. The sportscaster is my favorite. I don't know if I should let the creative cat out of the bag. It's a photomicrographed flea with a great looming forehead and tiny eyes. I just moved the eyes up to make the character of the face, it had an odd sense of intelligence, wasn't too much. It was done as a black capture and then a color merge and when I see it translated into the game-format screen shots all of the characteristics are still there.

What you do is you set up a recognition pattern design look. Depending how good that is, it'll take a lot of graphic juice just tiling that thing. The ships were one of the sheer planar type. The other Caladassian ships—they were the nasty guys—were a series of disconnected ovoids which were texture mapped and, both the artists that were working on it, I said to them, think of a spider's abdomen at the back of it. Organic patterns, and it looks great.

M2: Doug, have your experiences in LBE changed what you were looking for?

DT: Well, I think it's a completely new dramatic paradigm. The movie on the screen is just a replacement for live performers under a proscenium arch—classic theater. So get that up on the stage and you're in your seat, watching other people chase each other, kill each other, love each other, whatever, but you're a non-participating voyeur-observer of that drama. You get involved in that drama through your sense of empathy or whatever.

But in an LBE situation, you're going to be *inside* that experience. You're going to become a participant and you're going to have a direct relationship with those performers. And that requires a lot more from the audience than they are ordinarily prepared to do. I've had some very interesting experiences so far in just our first couple of months of operation at the hotel while working on how to cause the audience to play along with you.

It's a whole new art form which nobody knows anything about. There are no traditional cinematic rules that have to do with master shot, zoom shot, over the shoulder singles, tracking shots. Everything is told from a new point of view. Stories have to be told using a new cinematic style, new kind of timing. I find the whole thing is a big adventure. We're pushing off and creating a new form of entertainment.

M2: I've heard people complain "Multimedia hasn't found its D. W. Griffith." Perhaps what it's really looking for is its P. T. Barnum.

DT: Maybe it needs both! I don't know—I think we're starting to see that happen. In the past, the activities of LBE, which would be a theme park or a carnival or something, have been dismissed by the serious quote-unquote theatrical creative types, so we haven't seen much crossover in terms of major performers or producers working in these new media. But I think it's now starting to happen.

SM: They see it as a threat.

DT: It's not only a threat, it's also a lower form of life. I like to think that the *Back to the Future* ride which is now open—the first big alternative form of entertainment right under Hollywood's nose—is now being viewed by a lot of serious filmmakers who are taking it seriously and realize that there's a whole new art form out there.

M2: One last question, Doug. You scuttled out of Hollywood to avoid the sharks. Are there really fewer sharks in Las Vegas?

DT: No. But they don't presume to tell you what to do. M2

Entry Level Positions In Evolution

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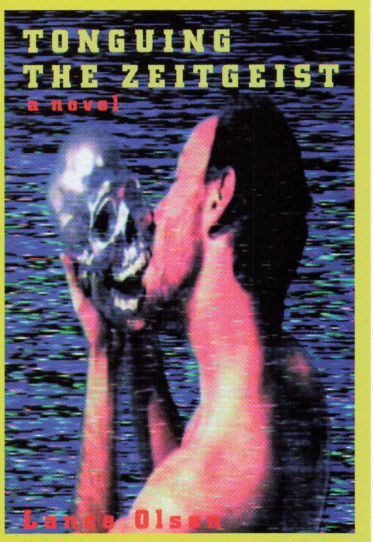

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KAMECKE FUTIQUES

Justine Herbert

"Are there formal configurations that inherently place themselves within a limited range of philosophical contents? Is it a fact, for example, as design handbooks say, that verticals are assertive, horizontals quiescent and diagonals dynamic and transitional? Does a ziggurat-like form inherently suggest the idea of hierarchy? Does a monochrome surface inherently suggest the idea of unity?"

—Thomas McEvilley

"Fascist aesthetics... flow from (and justify) a preoccupation with situations of control, submissive behavior, extravagant effort, and the endurance of pain... the grouping of people/ things around an all-powerful, hypnotic leader-figure or force... The tastes for the monumental and for mass obeisance... are common to both fascist and communist art, reflecting the view of all totalitarian regimes that art has the function of 'immortalizing' its leaders and doctrines."

—Susan Sontag

They look futuristic—or like relics of some future.

Theo Kamecke's future-past cabinets, obelisks, reliquaries, boxes and unidentifiable objects mark the passage of the computer through some theoretical space from innovation to institution to monument to myth.

"My works," he says, "are the representation of technology at a moment in history when it is about to disappear. It wasn't hard to see a steam engine in the 1800s. But now things are becoming miniaturized, just shrinking out of visibility. A hundred years from today, nobody will have any idea what technology looks like, any more than you can tell by looking at another person what kind of cells they're made up of."

The hidden guts of late-20th century workhorses—even washer-dryers have circuitry—provide the basic elements. Kamecke collects, catalogues and affixes the circuit substrate to wood forms for a slightly raised finish—an effect reminiscent of *champlevé*. He either dyes the circuit boards opaque or leaves them transparent to be lit from within.

Techniques learned in his days as a documentary filmmaker—like repetition and a certain degree of eye-fooling—create an illusion of monumentality. Anything reproduced in a series is perceived as a *logos* of that particular civilization. The total effect is nothing less than an emblematic art statement.

Dominant by design, their beauty represents the toil a civilization renders unto Caesar–the things it values. Kamecke has fully exploited the inherent design possibilities of the printed circuit boards. "Their properties of symmetry and repetition seemed to exlcude other aesthetics in favor of those of Egyptian, Byzantine or T'ang Dynasty eras," he comments. "It was an exploration of what was possible with this material. These objects give an impression of visual richness. They look as if a thousand slaves labored on them for a hundred years!"

—Justine Herbert

SARCOPHAGUS FOR C3PO - 1989

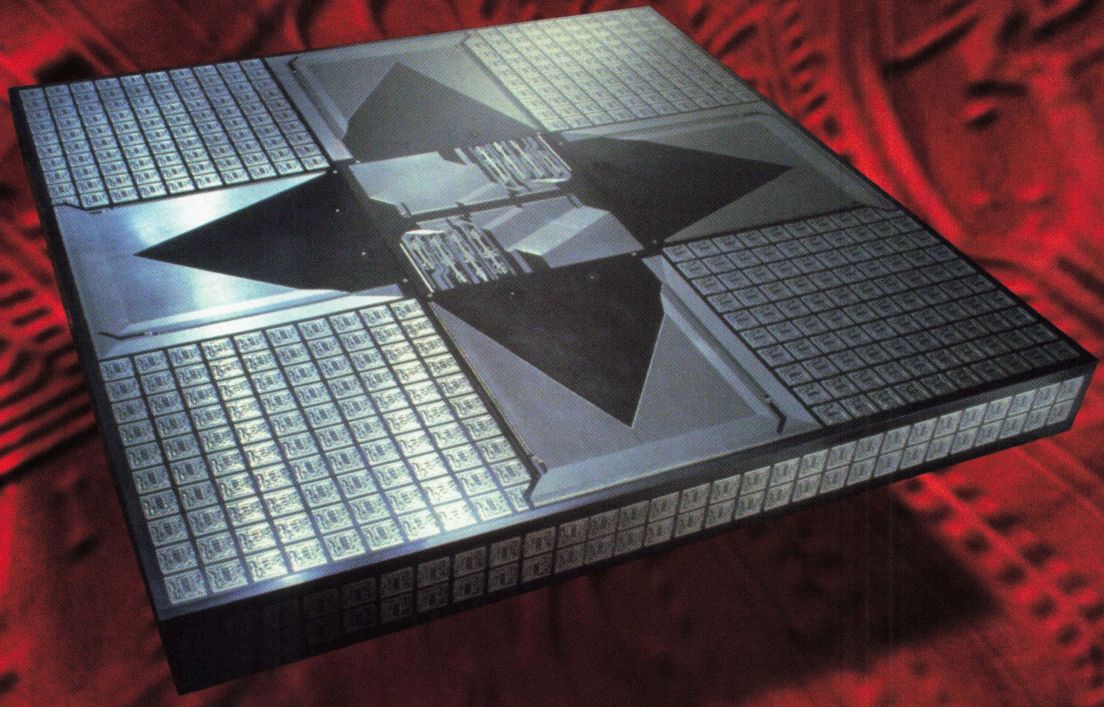
80" x 51" x 42"H

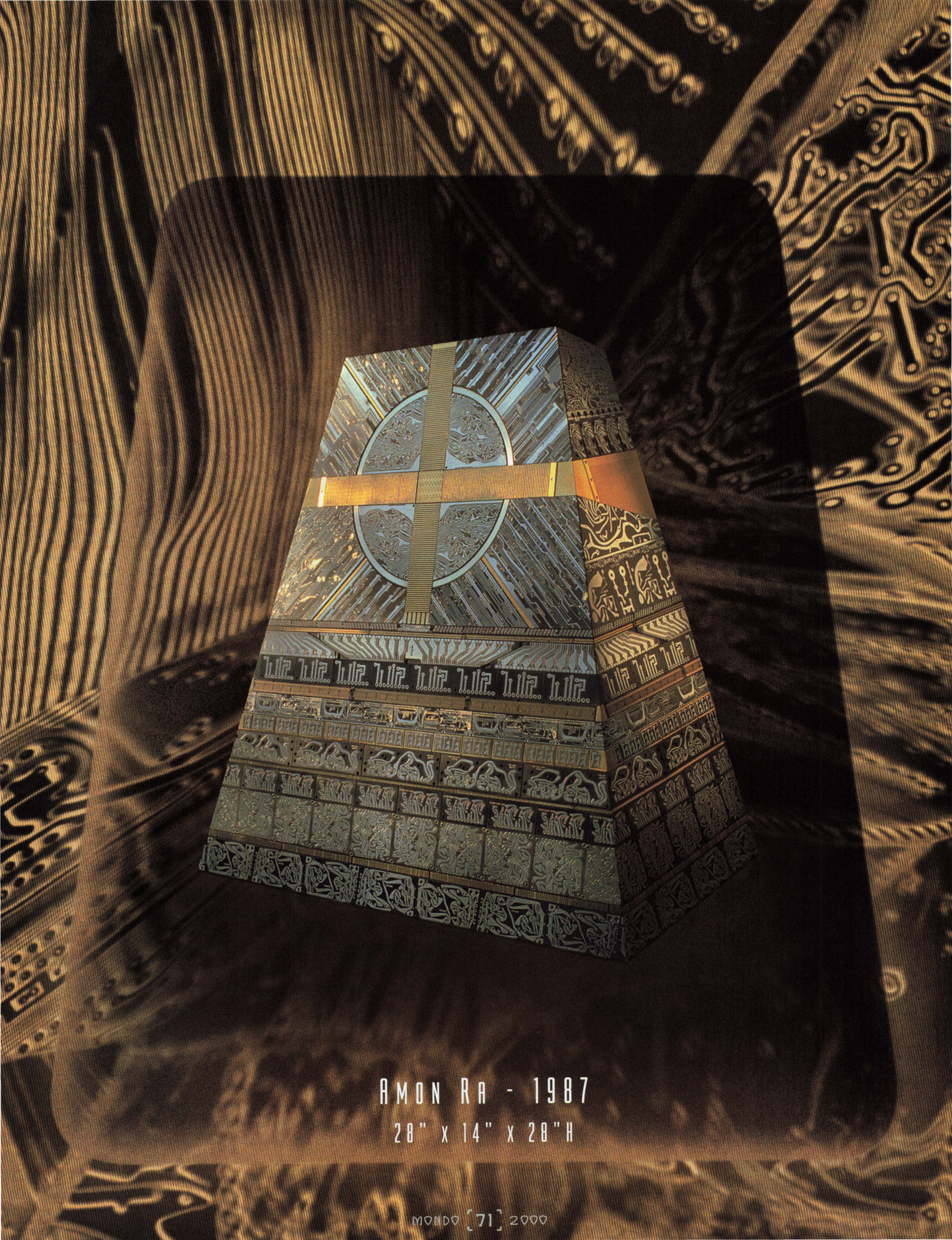
Shang - 1992

15" x 10.5" x 9"H

Sirius - 1991

Table - 50" x 50" x 18"H



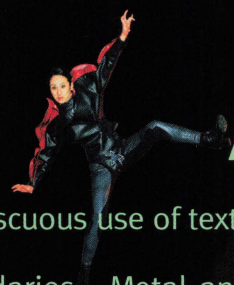


AMON RA - 1987

28" X 14" X 28"H

BINARY SPHINX - 1986

26" x 25" x 45"H



AMAZONE by RISCHA is hard-wearing urban armor.

Promiscuous use of textures like dotted vinyl and anarchic splatter. Details that surge beyond accepted boundaries. Metal and elastic closures. From basic to extreme; accessories to heavy vinyl and metal jackets. Out of Seattle. Alien meets Sonia Rykiel. No Animals died. All this and more!

FRACTAL SEA - 1986/88

64" x 52" x 25"H

Epiphany - 1986

18" x 18" x 60"H

Artist Theo Kamecke's studio is in East Durham, New York. For further information on the artist, contact Leslie Barany Communications, New York City Fax 212.463.7983

Amazone Fashions:

Page 72: **Nikki** in a black dotted vinyl jacket with three red inset flanges on each raglan sleeve, over a black ribbed cotton spandex suit with long sleeves and a quilted grey vinyl chest plate.

Page 73: **Kristen** in a different black dotted vinyl jacket; this one featuring sleeves of layered brass zipper teeth and dog clip front closure.

This page: **Maria** in a cropped lined bolero jacket with a tall snugly fitted collar and tails, plus thigh high spats and matching vinyl cummerbund.

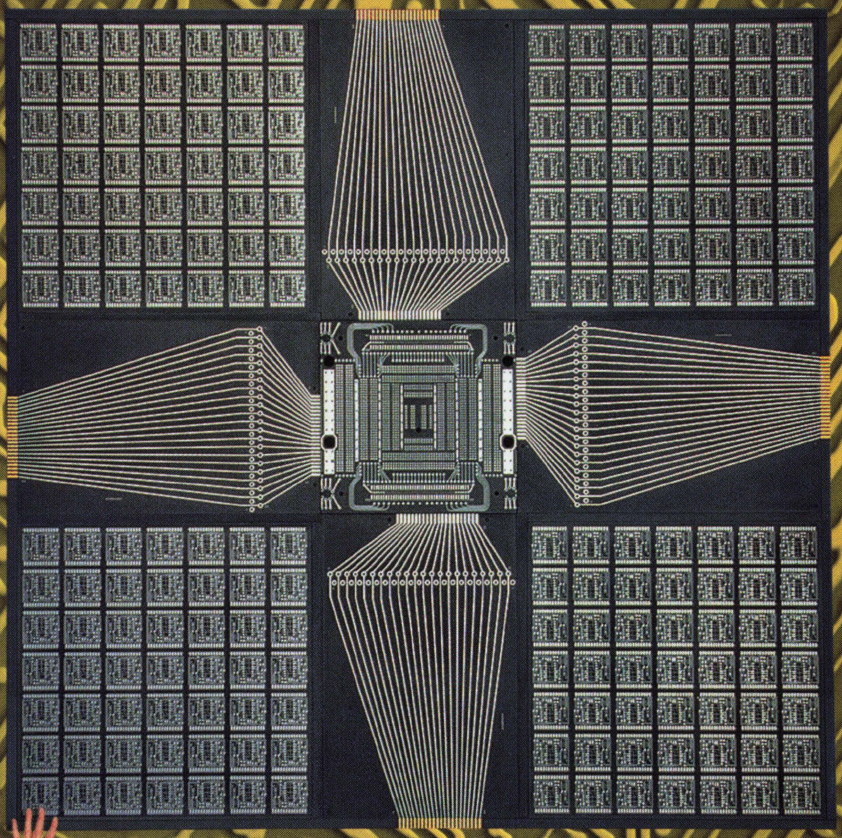
That page: Our previously introduced models sporting a gray quilted "shaped" pant with a spandex waistband under a set of grey quilted sleeves and a cropped black ribbed spandex turtle neck top with scooped out armholes.

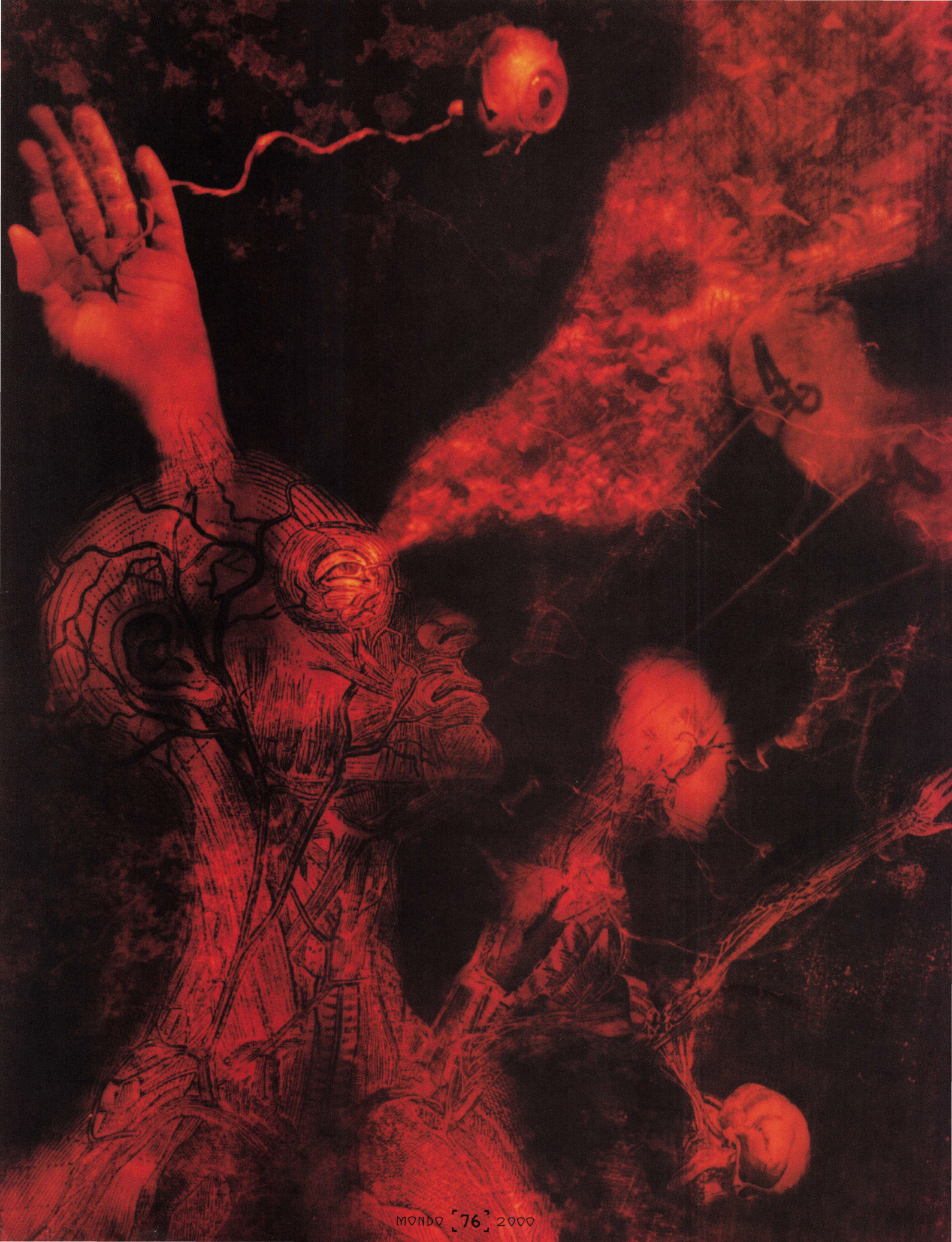
For more information on **Amazone** contact **Rischa**, Seattle, Washington 206.323.5061

Model/Fashion photos: **Bart Nagel**
Make up and Hair: **Eddie Valentine**
Coördination, styling and photo assistance: **Heide Foley** and **Georgia Rucker**
Modeling agency: **Stars**
Photo collage and Backgrounds: **Bart Nagel**

Epiphany is in the AT&T corporate art collection. Photo: William Whitehurst

SHIVAWATTS - 1988 38" x 38"





Synsory Overmode

Richard E. Cytowic M.D.
interviewed by Jas. Morgan

Almost everyone is familiar with the expression "I see what you're saying," but for a few rare individuals—synaesthetes—this metaphor is quite literally true.

Synaesthesia. It's the futique cognitive superfunction latent in us all. Literally it means "union of the senses." Synaesthetes can smell colors, see sounds, taste shapes.

In fact, any sensory modality can translate into any other: sight, sound, hearing, taste, touch. There are bimodal, trimodal and polymodal synaesthetes. The perfect example would be a 5-point synaesthete, where all the senses converge simultaneously.

It's a clinically rare phenomenon today, amounting to perhaps one in 25,000. But it goes back to the primordial ooze, to our most primary sensory wiring predating the late-stage evolutionary hypertrophy of the neo-cortex.

Until now it was known, to most of us, as one of the more treasured effects of the psychedelic experience. Few people realized that there were synaesthetes among us who tasted sunshine every day. But synaesthetes are now coming out of the closet.

And they're in good company. Rimbaud, Messiaen, Nabokov, Kandinsky, Fischinger are just a few of the more spectacular synaesthetes. For over 200 years synaesthesia has been one of the most enigmatic phenomena in medical psychology. Sir Isaac Newton attempted a mathematical correlation of sound and color. Scriabin mapped individual musical keys onto certain colors and his score for Prometheus: The Poem of Fire *featured a staff for a* clavier à lumières.

Messiaen, who likened his color composing to painting, is one of the supreme examples. Something of the ecstatic richness of his universe can be sensed from the following quotation:

"My secret desire of enchanted gorgeousness and harmony has pushed me toward those swords of fire, those sudden stars, those flows of blue-orange lavas, those planets of turquoise, those violet shades, those garnets of long-haired arborescence, those wheelings of sounds and colors in a jumble of rainbows of which I have spoken with love... such a gushing out of chords... the sacred instinct of the natural and true harmony..."

Scriabin's ambitious masterwork Mysterium *was never completed. It was planned as "a liturgical enactment in which music, poetry, dance, colored light and scent were to unite, inducing worshippers to a supreme, final ecstasy."*

The "supreme final ecstasy" seems to be where we are heading with multimedia technology. Could our species drive toward multimedia come from an urge to achieve the unified perception of the synaesthete?

Cytowic speaks of synaesthetes as "cognitive fossils" and speculates that synaesthesia "is a very fundamental mammalian attribute" that is "actually a normal brain function in every one of us, but that its workings reach conscious awareness in only a handful"—or by an accident of physiology.

It is tempting to invoke neoteny at this point, the notion that we are evolving toward the point where the snake bites its tail, where the overdeveloped cortex meets primal synaesthetic awareness.

Richard E. Cytowic, M.D. is not uncomfortable with these questions, having long cultivated a taste for the unusual. He had orthodox training in neurology and ophthalmology before he came upon A.S. Luria's book The Mind of a Mnemonist, *the classic account of a Russian performer of memory feats who also exhibited a high degree of synaesthesia. This led to ten years of intermittent research and the publication of* Synesthesia: A Union of the Senses *(Springer-Verlag, 1989). His new book, from Tarcher/Putnam, is* The Man Who Tasted Shapes, *with the piquant subtitle of "A Bizarre Medical Mystery Offers Revolutionary Insights into Emotions, Reasoning and Consciousness."*

Still and all, I wasn't prepared for the apparition that flowed into the North Beach Restaurant, hot off the podium from the AAAS. The black Mesmer cape, monocle, and handiness with menu Italian combined to suggest the true epicure of experience.

—Jas. Morgan

Illustration by Douglas Winter

MONDO 2000: In general terms, what is synaesthesia?

RICHARD E. CYTOWIC: Well, you know the word *anaesthesia*? It means "no sensation." *Synaesthesia* shares the same root and means "joined sensation." So synaesthetes experience things like "pointy tastes," "blue smells," and "green-wavy sounds." This is involuntary. It's not imagination—it's an external sensation.

It runs in families. It tends to be more common in women. There's a high incidence of left-handedness among synaesthetes. Their cognitive skills are uneven, but generally they're extremely bright people who have excellent memories.

Children learn to keep the experience hidden and private. They learn early on that any mention of it prompts ridicule and disbelief.

No matter what kind of synaesthesia the person has, the stories are remarkably the same. That they've had it as far back as they can remember. And pairings of the senses remain the same over a lifetime, so if a given sound is "blue" then it's always "blue."

M2: What's the underlying neurological model?

REC: The common view of how the brain works is that our brain is something like a receiver of the energy flux that bombards us. The evolutionarily later part of the brain, the neo-cortex, is what was thought to be dominant. All experience was believed to have some sort of localization in the cortex. The problem is that something like synaesthesia cannot be explained by that model.

In its heyday, which was probably between 1860 and 1920, synaesthesia was written about and talked about in many different areas—in the arts, literature, linguistics, philosophy, psychology, Theosophy. It remains unexplained not for lack of trying, but because the sciences of psychology and neurology were premature. And just as theories began to get interesting, that is recognizably modern, Behaviorism came along with its draconian restrictions against the unknowable, any kind of inner experience and, most of all, consciousness. These were taboo. So you ended up with things like B.F. Skinner's stimulus response, saying: "A person is a black box. We don't care what they think, what they feel. All we do is observe the external behavior." And he ended up, you know, putting his daughter in one of his Skinner boxes.

Well, now the pendulum has swung back. When I stumbled across synaesthesia by accident, the standard model of the brain was insufficient to explain it because there *is* no area where all the five senses converge in the cortex. At most there's only three faculties—sight, hearing, and touch—that come together in what's called the parietal association area. And here I had a man whose sense of taste, smell, and touch joined.

M2: So what model do you favor at this point?

REC: Well, the hot-off-the-press one is what's called the *multiplex model*. It really turns our common assumptions upside-down and inside-out. First of all, perception is not linear. Information is transferred not only in the brain but throughout the entire body in many more ways than just the "long wiring" of axon and synapse that is familiar from the traditional models.

Rimbaud peignant les voyelles, caricature de Luque

M2: What are these ways?

REC: Well, they are generally called volume transmission. If you think of the hard-wiring axons and synapses as a train going down a track, then volume transmission is the train leaving the track. Most of these are hormonal and small-molecule messengers—the juices that surround the hard-wiring and modulate it. There are now over a hundred and fifty of these chemical messengers known and new ones are being discovered every year.

What this says is that information is transferred in the nervous system by more ways and at more speeds than we'd hitherto realized—slow being the diffusion of peptides in cerebrospinal fluid at millimeters per hour, whereas in axonal fluid you have transfer rates of a hundred and twenty meters a second—a phenomenal range for information transfer.

Part of the multiplex model revises our understanding of how information *flows* through traditionally recognized "structures" or "entities" of the brain. They're by no means one-way streets as we had thought a while back. They're reciprocal connections that go back and forth and branch out from one locale to many others—anywhere from ten to thirty.

You know, a traditional pastime of neurologists is to localize where functions are—like, language is located in the left hemisphere of most right-handed people. Neurological real estate, if you will. Now, in the case of something like vision, we now know that there are nearly two dozen discrete areas for vision in humans. And each area has to do with a certain aspect of seeing. So, knowing that there is something to be seen at this one place, what it is you're seeing goes elsewhere, its shape goes someplace else, and whatever it takes to determine the color is farmed out in yet a different part.

What this means is that perception is like a gem with many facets. And these facets can detach and take on lives of their own. So I guess the most important thing about the new model is the primacy of emotions and limbic processing.

The limbic brain is evolutionarily older. It's the ring of tissue that circles the brainstem where the hemispheres come together and resides underneath the cortex. And it has to do with emotions, memory, and attention. And instead of being *subservient* to the cortex, it turns out that there are more connections going from the limbic system to the cortex than the other way around.

M2: What are the current mysteries? What aspects does the standard model fail to explain?

REC: A big problem is what's called "binding." Cognitive scientists who believe the mind is modular think binding is related to synaesthesia. It's: how do we bind all of these facets together so that I have the linear shape of my pen, and its purple color here, and the metal of the clip and all that, stored with *a memory* and the semantic idea of what a pen is, what it's for, and all that? And then if I move or the light changes, the problem needs to be recalculated moment to moment. That's a problem that's bothering a lot of cognitive scientists now because they've made a model of the mind that's based on the idea of "chips" or modules of function, and now they are faced with the problem of assembling it all back together. If you go with the multiplex model, it's not a problem because perception is holistic to begin with. And of course consciousness, the nature of consciousness, what is it? Everyone's interested in that now.

M2: Are you familiar with McLuhan's notions on the human sensorium and how phonetic language made a shift in what we now think of as consciousness?

REC: Well, yeah. These are ideas of ontological progression from primitive to more refined or more differentiated ways of receiving. But you see, the lesson, as far as synaesthesia is concerned, is that perception is holistic to begin with. Our brains are not passive receivers just sitting there saying "Oh, here comes a smell. Here come some wavelengths." They are active explorers seeking out the stimuli that interest them. Perception does not come from

Richard E. Cytowic as the Bishop in Jean Genet's *The Balcony*, Duke University, 1970.

the outside in. It comes from the inside out.

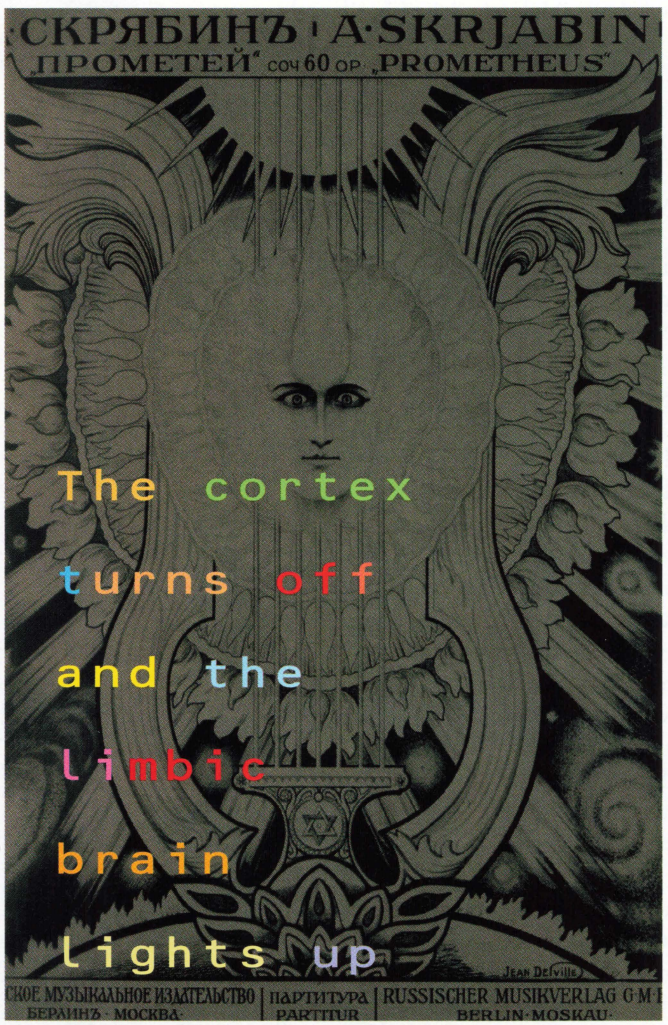
And this is a scientific or neurologic explanation for why some people see the world differently. We usually call such people artists, and poets, and maybe even politicians. When you think historically, artists—even those who have been abandoned and despised and ridiculed—persisted with their vision because that's all they can do, their vision.

M2: Do you think it could be that certain "castes" of people are neurologically wired for specific cultural/evolutionary functions? Politicians, artists, philosophers...?

REC: Well, all brains are unique, and it wasn't too long ago that we said dogmatically that they're all alike, and not only are they all alike, but the right and left sides are mirror images of each other. In 1968 Norman Geschwind and Walter Levitsky showed that, yes, there are differences, and they're *not* subtle. You can measure them with rulers. And it's just that people hadn't *looked* before.

These different talents and perceptual abilities have to do with deviations from the standard pattern of cerebral dominance. The standard pattern of cerebral dominance is that a female brain... Well, we all start out as females, and then under the influence of testosterone, principally, some of us become males. Female brains develop faster than male brains, and the right hemisphere develops before the left hemisphere. And there's a pattern of parcelation, or doling out, of intellectual talents—language and handedness in the left hemisphere in most people, and so forth.

Anything that delays the maturation of the left hemisphere is going to cause a non-standard pattern of dominance. Again, certain talents segregate together. So, for example, you have left-handed men who excel in spatial abilities: architects, gymnasts, athletes who do things like shot-putting and the high bars... Many male architects, you'll see, are left-handed. And this is, I think, how some brains get to be synaesthetic. It's that it's the same sort of process.



M2: Have you found a higher incidence of synaesthesia in the gay community?

REC: Why do you ask?

M2: Well, it seemed a reasonable inference.

REC: I don't see the inference at all, but it is an empirical observation that over 10% of synaesthetes are gay or lesbian. We've heard a lot recently about the "gay gene" and anatomical differences in the brain between sexes. The concept of cerebral dominance and multiple specialization is just a scientific way of confirming the observation that each one of us is unique. Each brain is unique. In the elimination of superfluous neurons and their competition to claim synaptic targets—a process that begins in utero and continues well into childhood—both heredity and environment sculpt a brain that is uniquely configured and thus uniquely talented. In addition to fine-tuning the hard wiring of course are the modulating effect of the "juices" that I spoke of regarding volume transmission.

M2: Why is it that synaesthesia is more common in women?

REC: Well, that's just an empirical observation, for starters. I'm somewhat hesitant to say that I don't know. But any explanation I give you is going to be speculative.

M2: Well, how about a wild, speculative...

REC: Well, I'm just coming to that! I think it has to do with anomalous patterns of cerebral dominance. That the sex differentials associated with difficulties in math and spatial ability suggest that there is something affecting women that—I hate to use the word "disrupt"

'cause I don't want this to sound like it's pathological—but that *alters* the standard pattern of cerebral dominance. So that, for whatever reason that we don't know yet, it happens in women more often than it does in men.

M2: Like Howard Gardner speaks of kinaesthesia as a form of intelligence, could you see synaesthesia as a form of intelligence?

REC: Well, it's sort of the root from which all perception springs. It's not a unique *kind* of intelligence. It is the seed from which all perception grows. The senses are bound like a five-layer cake, and we take a slice, each sense samples every event, if only just a little. And as perception unfolds from within our brains out into the world, it parcelates out into the individual senses. Just like the trunk that grows from the seed starts forming branches.

Maybe that's too radical for most people. I think part of it has to do with the sheer number of psychologists and cognitive scientists without any biological background who believe that the mind and the brain are a computer. See, I don't believe that. I think that's a very bankrupt way of looking at life.

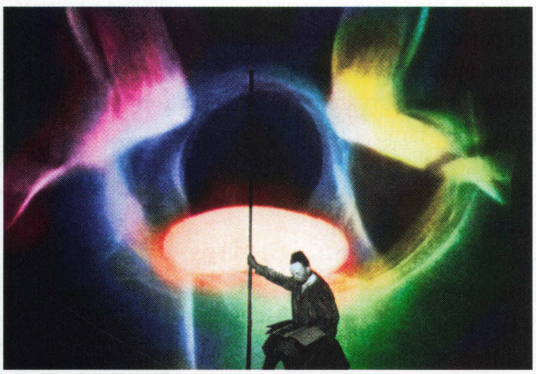
M2: I'd say a great many Mondoids subscribe to the computer model of the brain. How would you describe this bankruptcy?

REC: See, when you artificially isolate elements of a model which then become reified as real entities, hypothetical models of the mind seen as computer "chips"... With the computer metaphor you have the illusion of control over parameters of a behavior if you simulate it on a computer. And it gives you a false feeling that you're doing science 'cause you've got abstraction, prediction, you've got hard numbers, okay?

But even cognitive science itself is a misnomer, even if you call it cognitive psychology. The formal term suggests that there is a science of cognition. But there isn't. So-called cognitive science makes box diagrams, connects them with arrows, and then calls this the process of cognition! I mean, you think that making a model of a process is a process model, but it isn't. Heuristics, you know.

See this is the distinction between the deficit of the experimental approach of people who are studying deficits. Cognitive science says "What can't the person do? And now we're going to probe this." Whereas the people who are clinically-based are interested in symptoms. And what is a symptom? Well, a symptom is a positive expression, whereas a deficit is a negative absence. A symptom or an error is a premature display of a normal process. And this is what synaesthesia is. It's a premature glimpse of a normal cognitive process in which perception is holistic. And it may be that in the clinical approach, which is usually looked down on by the experimentalists, it may be that that itself is more hermeneutic that scientific.

The cognitive mind, which people think is the computer in the head that's running things, is like the Wizard of Oz, the apparition out there, whereas your inner knowledge of the limbic system is what's behind the curtain pulling the levers. And your inner knowledge behind-the-curtain knows you better than any external agent ever could. Which includes the doctor who says "There's nothing wrong with you" and the politician who knows what's best for you. You know, Hillary and all that... I mean, they're going to make all of our choices for us, see? Because they're the experts. And so, you know, spouses who think they know how you should live your life...



Thomas Wilfred rehearsing a "Lumia" composition for his world tour of 1924-1925

Reason is just the endless paperwork of the mind. It's *experience* which first comes through the limbic system. And is what's more valid. Now, allowing our experience to be what it is does not prohibit us from overlaying it with rational considerations. But it's important to realize that it's the emotional part that comes first. Then afterwards we can talk about it all we want.

M2: This talk reminds me of your line that "Synaesthesia is the antidote for the overly intellectual."

REC: [*laughter*] Well, I think that was Clark's [*Reverend Clark A. Thompson*] comment about meditation—that sitting in front of a blank wall with your eyes open was the antidote to analysis. In a way, synaesthesia *is* because it's an *experience*. Whereas the neo-cortex, the rational mind, is concerned about *meaning*. What is the meaning of a flower?

M2: People, because of the cultural taboos, hide their synaesthetic capabilities in the closet...

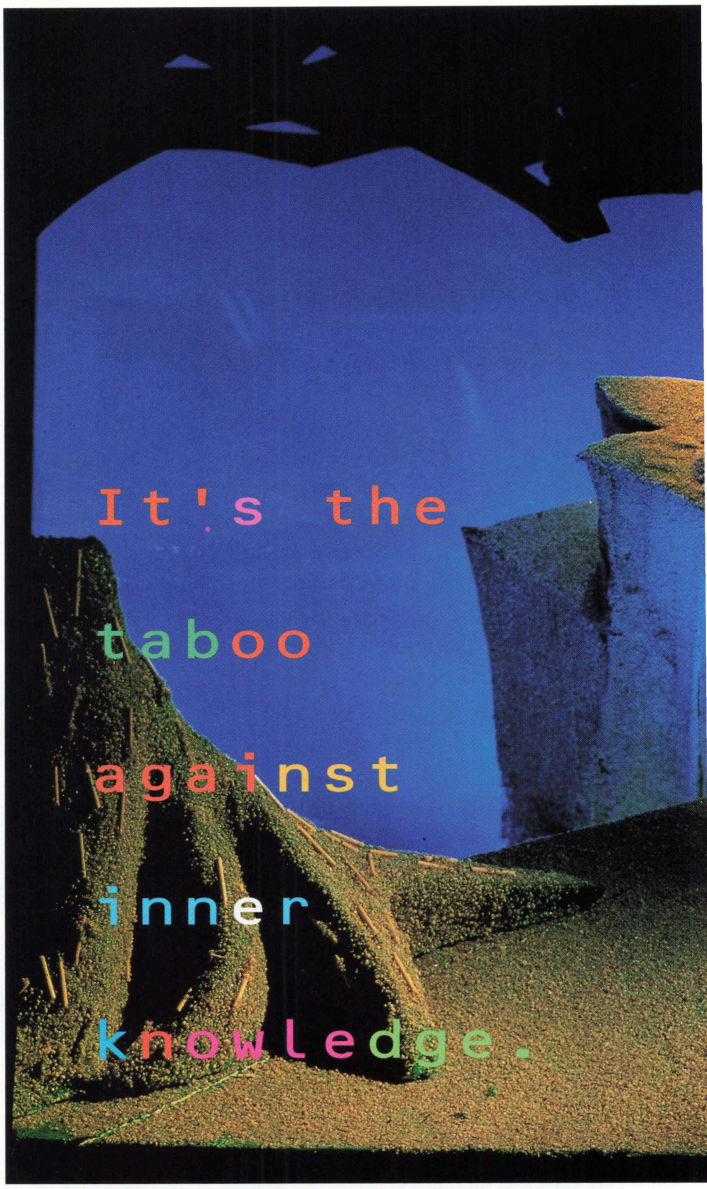
REC: Well, now they're out of the closet!

M2: Tell me about this coming out.

REC: It's a catharsis. Sometimes to the point of tears. "Ohmigod, I didn't know there was a name for this. I thought I was the only one in the world." The taboo has to do with "the Editor"—the external one that says "Oh, I can't do this." It's the taboo against inner knowledge.

M2: For somebody reading this interview who recognizes synaesthetic capabilities in themselves—what would you say to them?

REC: Enjoy it! You're very lucky to be in touch with a process that



is so fundamental—and fundamental not just to what it means to be human, but to be mammalian. And above all, trust your experience.

M2: What about the effects of drugs and synaesthesia? Let's start with psychedelics. I'd say that a fair number of our readership...

REC: ...has tried 'em out.

M2: Now, do you draw a distinction between drug-induced synaesthesia and eidopathic synaesthesia?

REC: Of course it's induced as opposed to just happening by itself, so they are different, but they're qualitatively cut from the same cloth. Heinrich Klüver, going back to the thirties at the University of Chicago, showed that LSD, peyote, mescal, in particular those that seem to block the flow of serotonin, will sometimes induce synaesthesia. And then other things like temporal lobe epilepsy or sensory deprivation can do it. You know, if you're in a tranquillity tank...

M2: John Lilly's invention?

REC: Right. John Lilly's type of thing will do it. And so will going blind or deaf, but that's an unpleasant way to have it. Those few synaesthetes I know who have taken LSD have an experience that is not the same as their own synaesthesia. Michael Watson seemed to be extremely sensitive to LSD, and he didn't like it, frankly.

Physiologically, synaesthete's brains are different. I mean, we've got the high-tech "objective" proof to show it. That work has been replicated recently by a group in London with PET scans. And they show the same thing I showed earlier—that the cortex turns off and the limbic brain lights up.

M2: What about the effects of other drugs?

REC: Well, anything that stimulates your cortex seems to dampen or reduce the experience of synaesthesia. So, caffeine, nicotine, amphetamines, all the uppers will do that. Anti-epileptics tend to do that as well. And things that *depress* the cortex—alcohol being the obvious one—intensify synaesthesia. It's kind of hard to find over-the-counter stuff that is helpful.

M2: What about under-the-counter?

REC: Well, aside from LSD and peyote, hashish is the one that leaps to mind. Particularly the more potent forms like the green paste in *Le Club des Haschischins*.

M2: Oh, I love that one. But they're practically swinging from the chandeliers. Are there non-drug methods for those unwilling to sign a chemical contract?

REC: I think that for people who'd want to try to have such an experience, the first step would be some sort of meditative practice. Some practice that shuts up the inner dialogue, the yakety-yak of the analytical mind. And, as excited as people are about wanting to have a synaesthetic experience, once you've had one—well, you've had it. It's really the *implications* of synaesthesia that are exciting.

M2: How would you describe your own experiences?

REC: Well, it occurs during meditation. When it does happen what I tend to see is a great blue-purple geode in front of me. Like an amethyst crystal that rotates and scintillates. And it comes and goes.

M2: Is there a specific method of meditation that you use?

REC: It's called Sōtō Zen. North of you on Mount Shasta is Shasta Abbey, which is the American Headquarters for the Sōtō Zen Church. The Abbess is a fabulous Englishwoman who was the first foreigner and the first woman to be ordained at the imperial Sōji-ji Temple in Japan. Sōtō Zen means "serene reflection." So unlike Renzai Zen that most people know involves these koans, these mental gymnastics, theirs is to "neither think nor try not to think." You sit in front of a blank wall with your eyes open and stop deliberate thinking. So in a way it's like sitting under a bridge letting the cars go over you. And those cars are like your thoughts and you just let them go.

All sorts of things happen during that stage, particularly for beginners. The Buddhists call that *makyo*, which basically means "distraction." So you feel hot and cold, you feel like you're falling

© David Hockney, *Tristan und Isolde*, Act III, Opera Model 1986/87.

over, you hear things, you see things, you get creepy sensations up your flesh, your vision goes in and out. People who take this as a sign of great spiritual progress get stuck there.

M2: I heard Kandinsky was a big influence on you…

REC: Oh yes! You *have* to read *On the Spiritual In Art*.

M2: Was he a synaesthete?

REC: Oh, yes! From what I have read about him and by him. He doesn't come out and say it point-blank. But he did step off the path of representational art. And it wasn't for him some "Gee, well let's try this!" It was a response to *feelings* that he had. This union, this sensory fusion. For Kandinsky, I think, it was phenomenal rather than an idea of that Zeitgeist. And he talked about his paintings as compositions, and he also referred to them in musical terms. He wrote that one-act opera, *Der Gelbe Klang*, ("The Yellow Sound").

So Kandinsky, I think, is probably one of the grandfathers of this movement. He and I are saying similar things. Stop this neocortical computer, this reasoning machine from cranking out this endless paperwork. Reason has nothing to do with painting.

Now, what is unfortunate is when you confuse synaesthesia with a deliberate contrivance of sensory fusion that's based on the abstract idea of sensory fusion. Because they're two different things.

Now the other painters—I really don't know any from Kandinsky until you get to Hockney, whom I know personally.

M2: Tell me how you met.

REC: Well, David, he is so sweet. He's brilliant. He was big news because he was painting the opera sets at the Met. And everybody was saying how totally fabulous they were, and how totally different from his painting style that everybody had been familiar with. And in these interviews I'd read, he was talking about the fact that the music had certain shape and color. So I wrote to him.

Five or six months went by, and I finally got back a hand-written letter on a yellow legal pad in red ink which said: "I've been carrying your letter around with me for months wondering whether to answer or not. Would it tell me anything that

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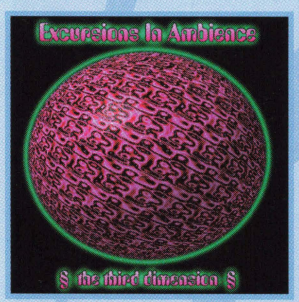

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I really want to know or would it be better not to know? I've never heard of synaesthesia. At first I thought you were just trying to scientifically analyze what I always thought of as artistic. But, anyway, curiosity has the better of me so let's get together and talk about this." So we did. I went to Los Angeles and spent two days with him,

a highlight of which, for me, was swimming nude in his pool. His famous pool painted with those blue marks. So I thought "Oh, boy! I'm in David Hockney's pool."

So that's how we met. We did some experiments there, and sure enough he was genuine. And for him it's the melody, it is the sequence of things that gives him the impression of size, shape, color, and form as well. I often like to contrast Olivier Messiaen with David Hockney because of their approaches. The way synaesthesia influences their art is almost polar.

M2: How is that?

REC: Olivier Messiaen, who just died a couple years ago, is world famous. His music is instantly recognizable. The gongs, tom toms, bells with their harmonic halos. His synaesthesia, actually, works both ways. When he hears music he sees colors and when he sees interesting colors he hears music. So when he went to Bryce Canyon, Utah for a commission to do *Des Canyons Aux Etoiles*. He said he went to Bryce Canyon and "My eyes just went up the canyon wall looking at all those fantastic shapes of the wind-carved rocks and the ochres and the oranges and the orange-reds in the rocks... And the music just wrote itself."

Anyway, back in the 40's, Messiaen was trying very much to convey in music these colors and found out that the usual ways of composing and representing sounds were not adequate. So he invented a system called the "Modes of Limited Transposition"

Carol Steen, *Folding Rule* (1991). Alkaloid/Oil on paper

which is all explained in his book *Technique de mon Language Musicale.* And this is why his music sounds so weird but everybody likes it. It was a way to directly translate what these colors were, for him.

Now Hockney. When I met with Hockney in 1981 he said "You know, I never thought there was anything unusual about this." Of course he'd never been asked to paint to music before, you see? It was the first time that anybody asked him to paint to something that was going to be shown to music. So he would say things like—you know, the Stravinsky opera *Rossignol*—he says "The first thing that hits you is that it's all *blue*. And it's infinite varieties of blue, but it's all blue. And it's also transparent." So he gets images like moonlight and water and all that. So he ended up, basically, using a motif of those blue porcelain china plates. The very early Chinese ones.

So becoming more aware of his own synaesthesia led him, I think, to explore the nature of space—what is it that we see when look at something? And so you get the photocollages.

After he began being aware of the nuance of color and shape, he went on to insist on and invented that miniature stage where he could control all the lighting while he painted his sketches. Because the way you lit them made a difference as well. And then I guess he did the Los Angeles *Tristan und Isolde* where he experimented with three dimensional scenery. He said he was interested in "space that you walk around the corners of." Rather than the single, one-point perspective of the Renaissance, where Canaletto is the main example.

So, Hockney did not try to reproduce or codify his synaesthesia. It was just another building block for him that stimulated his mind. Another way to convey something. And he speaks in visual terms whereas Messiaen says it in musical terms. And both of them are emotional. I mean, you can't stand in front of his "Pear Blossom Highway" photomontage and not just be all "Wow!" So there are two very different approaches.

M2: What about Alexander Scriabin?

REC: Scriabin would probably be the main example other than Messiaen. Scriabin was very much taken with mysticism and Theosophy, and the whole idea of sensory fusion. That was the zeitgeist of the time, I think. But again, Scriabin was synaesthetic, as were Rachmaninov and Lizst. And of course *none* of them agreed on the colors of the notes or the keys. But Scriabin provided his own little correspondence code.

Have you ever looked at the original score for *Prometheus: The Poem of Fire*?

M2: Isn't that in the Springer book?

REC: Then you know that the first line of the staff of the score is a part for a *clavier à lumières*, the light organ. He had a light organ built by the General Electric Company for Carnegie Hall. The purpose was to project beams and clouds of light above the orchestra to go in time with the music. Its part was notated in the score.

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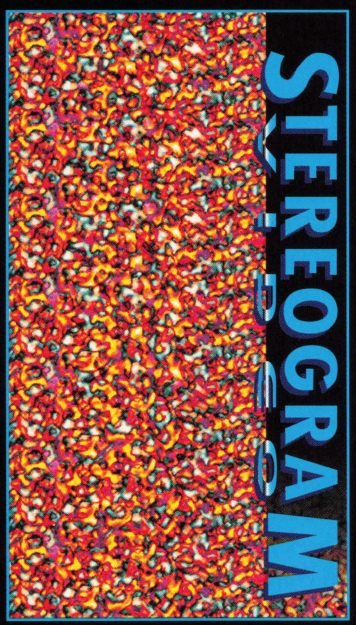

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And all of this was to culminate in a white light that was so intense as to actually be "painful to the eyes."

M2: Have you seen the journal *Experimental Musical Instruments*? They feature all sorts of things from historical pieces on the genesis of synthesizers to people who make lyres out of toilet seats.

REC: They talk about the theremin and the Ondes Martenot?

M2: Of course! And occasionally they'll be a feature on something like a color organ, or a smell organ... Do you know of any other interesting attempts at synaesthetic musical instruments?

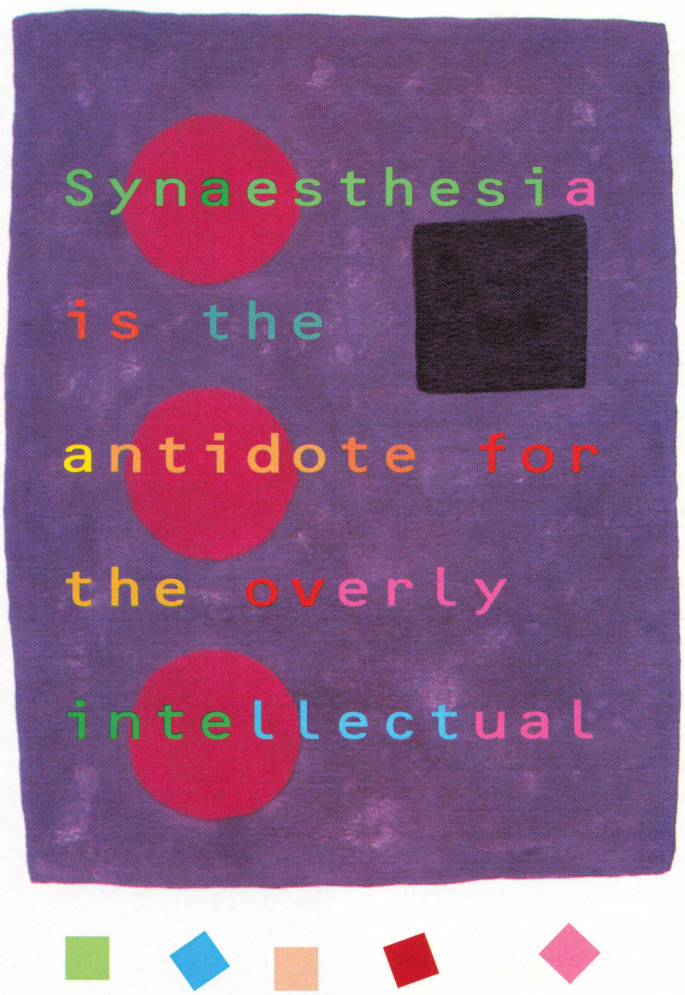
REC: Oh yes, yes. And they go way back. Most of them are built around the theme of the color organ or the color keyboard. Now the *clavecin oculaire* goes back to the mid-seventeen hundreds. Monks built this thing—the idea where you would push the key and it would open up a shutter and you had these color candles with glass that project a colored light.

Charles Darwin's grandfather, Erasmus Darwin, built one about 1810—in his case he used a harpsichord. And then by the time that Scriabin came around in 1905 or so, you had these electric apparatuses that just "played the light." Rather than the light and the sound, they had an orchestra for the sound.

This whole post-Wagnerian idea of sensory fusion... You know, we had "The Yellow Sound" by Kandinsky and Thomas De Hartmann in which the music was to parallel the emotions of the singers who were telling the story. And then other pieces would have incense and smell. I mean we did the same thing back in the sixties with Odorama movies... Remember that John Waters film with Divine and Tab Hunter?

M2: *Polyester*.

REC: They would give out special scratch-and-sniff cards in the lobby!



Jane Gossage Bowerman, *Communication* (1985). Watercolor on paper

M2: That makes me think of the original attempt at virtual reality back in the very early sixties. There was a guy named Morton Heilig who invented an arcade game-like machine, the Sensorama Simulator, that you would step into. Big molded plastic...

REC: And become part of it.

M2: Right. You would look through a stereoscopic viewer that would put you in the position of being a motorcyclist riding through Manhattan, and as you would "ride" you'd get binaural sound, breezes, odor, vibrating knobs and seat...

REC: Like those early IMAX films from the World's Fair in 1962 or 1963.

M2: I have a theory that the integration of electronic technologies is creating a change in people's nervous systems. The way they cognize, the way they think about things. The word processor is a good example. Do you think these trends might encourage the synaesthetic faculty?

REC: What an interesting question. The technology, the tools that we have, change our concept of the world. And eventually we come to see tools as prosthetic extensions of ourselves. Any tool is turning nature into your service, okay? If you reject your own direct experience and believe that all the answers come from the machine, then I think you might as well be dead. Because you've just abdicated your own psyche.

But, if you repaint your experience, and say, "I am the center, the technology is the surround... I am the hub of the wheel." Technology is, like cool!—they are my sorcerers, and my apprentices. Then who knows? We cannot predict where technology will take us. M2

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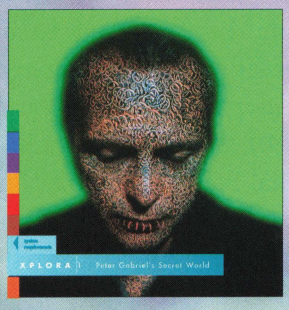

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Cabaret Voltaire. Underground godfathers of techno. Industrial saboteurs. Mad scientists of sound. Electro luddites. Art provocateurs.

The dadaist trusts the sincerity of events more than the brilliance of people

Richard H. Kirk, Stephen Mallinder and Chris Watson first started their experiments in sound collage an unbelievable 20 years ago. Mostly working with tape in an attic in Sheffield, they occasionally put out cassettes and pestered promotors for gigs, where the magical blend of clarinet, Dalek vocals and a Vox Continental brought them instant success. A thousand bottles hit the stage.

He feels that people are dirt cheap, including himself

Punk brought Rough Trade Records, and national notoriety. What's black, round and goes ping ping ping? A Cabaret Voltaire record—NME. When Chris Watson split for a job in television, the Cabs switched hats and got funky, tried their hands at being pop stars, modern romantics, soul boys and any other strategy that furthered their nefarious schemes.

He knows that the world of systems has gone to rack and ruin

After a bad experience with EMI in the late 80's, they vanished... to reappear in a blaze of technoactivity on their own label, Plastex (licensed to Instinct in the USA). Digital Lifeforms, *by Sandoz (Touch),* International Language *and* Plasticity, *by Cabaret Voltaire (Plastex/Instinct) are all full length CDs out in 1993, with* Virtual State *by Richard H. Kirk (Warp) and a double CD,* The Conversation, *by Cabaret Voltaire (Plastex/Instinct) for April 1994. Harnessing the new language of techno has done nothing to their ability to frighten the horses.*

Time, a dunning creditor, has started a rummage sale of godless philosophies

Nipping at their heels are Orbital—young turks of techno and crazy baldheads from Sevenoaks ("Kate Bush? Oh yeah, she's a great mate of ours"—cue rolling eyes). Their second album—wittily entitled Oribital 2*—got comments like this: "Gossamer currents of melody carry you along and the rhythms kiss the skin." Their next CD will be ribbed for extra sensation.*

I pick up Orbital at the station. The idea is to use them to get past the guard of the elusive and enigmatic Richard H. Kirk—a man who has gone to some lengths to preserve his anonymity.

He suffers from the dissonances to the point of self-disintegration

While they engage him in inner guild discussions, I'll trap his deadpan Sheffield accent. Soaked to the skin, we pass the robotworks.

The furnishings of the cabaret were inconceivably primitive

Kirk leads us through a series of heavily locked antechambers.

You walk through the darkness of an immensely somber hall screened by cement ceilings

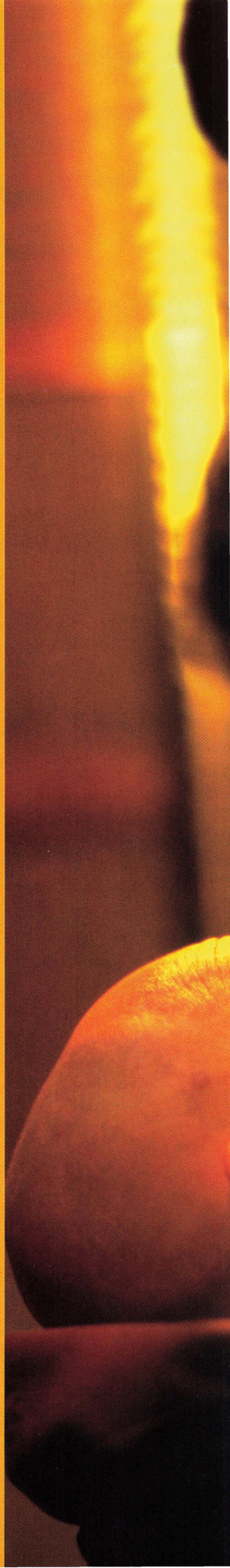
In the autoshop downstairs, a soulful voice breaks clear of the mechanical racket.

Silence mingles with the smell of machine parts, the breath of oil and rags

Inside Western Works, the white noise of a weir filters through the window.

If you go beyond the city limits, you see the ugliness that modern manufacturing brings into human life

Outside these walls, the weather is killing eleven people.



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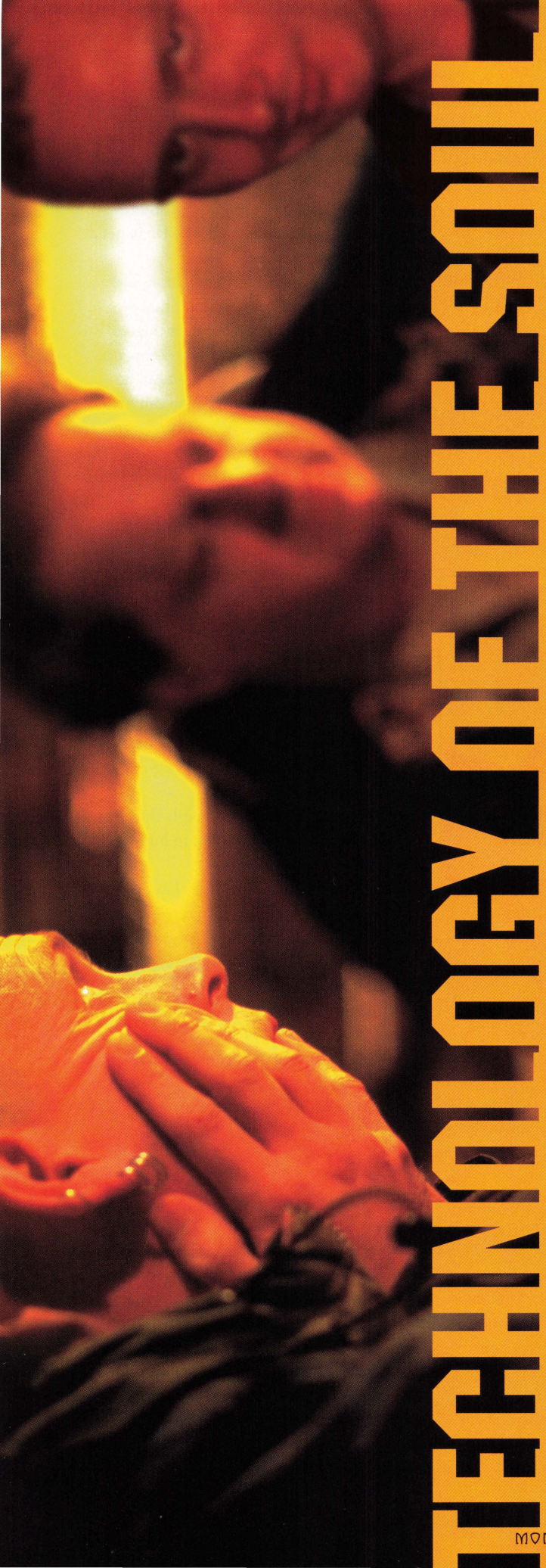


TECHNOLOGY OF THE SOUL

STATE OF THE NATION

Orbital: What's inspired you lately?

Richard H. Kirk: I've been reading *City of Quartz*. It tells you how parts of L.A. were ghettoized by residents associations. They got all the minorities living in certain areas and then you can control them.

M2: And what about new science?

RHK: I'm finding the whole virtual reality thing to be getting a bit out of hand—that's why I called my new album *Virtual State*. I did see a good bit on the Kennedy assassination where they did a virtual reconstruction of someone looking down the gunsight. That was quite nice. My nightmare of the future is putting on one of those fucking headsets and being unable to get the fucking thing off. I don't want to live in a world that's not real. It's like drugs.

Orbital: I *like* drugs for purely recreational value, like being on a swing when you're a little kid—all these little apparatuses to simulate things you don't normally do when you're walking down the street. I'm into VR in that sense. But it ends up being total escapism, like drugs. Can't be more addictive.

RHK: It's almost there. People live their lives through the TV set. Most people's only notion of something that's happened in the Far East is from the TV. Who knows if it's fucking real?

Orbital: People take it for truth if it's on the fucking TV.

RHK: Wars are fought there, elections are won there—you know what I mean.

Orbital: A fine example was the revolution in Czechoslovakia. The first thing they took over was the TV station.

RHK: 'cause they know that's like a weapon, better than a gun.

BELLY OF THE BEAST

Orbital: When you started, from what I remember, you did a lot of film.

RHK: We'd all been into the Velvet Underground. We'd seen the pictures of the projection, and thought this is the thing to do. A certain blindness is necessary if you want to accomplish something unusual Then we moved on to Super 8 and started shooting stuff from TV. It was meant to be an abstract thing, just to provide lights.

Orbital: So it wasn't a multimedia event?

RHK: Well, we used to do little collages at the time of punk, not really fanzine kind of stuff—cut-up things and montages—and we used to hand them out at the gigs. But we focused in on the music because it was something that was more instant.

Orbital: I went to that showing at the ICA of *Drinking Gasoline*.

RHK: We did end up working with Pete Care, who's quite a respected filmmaker, does commercials these days. When Chris left the group, Mal and I bought a load of domestic video machines and started up Doublevision getting out videos. Making every effort to draw them into our erotic fantasies The majority of the stuff we put out used two VHS's and pause buttons. Very basic.

M2: Ahead of your time. If you were using today's technology it would be a lot easier.

RHK: Well, I got disillusioned with that stuff when all the adverts started to look like cutups and I thought, perhaps it's the time to stop. We came to a situation where we thought we can't go on repeating ourselves. We've

grown old and we can't evoke our youthful ardor or the miracle of working together spontaneously We did write a film treatment with Pete Care called *Earthshaker* where people were doing this designer drug called Earth-shaker and it was sending them all crazy. It was going to be a ten bob version of *Blade Runner*, all set in the bleak industrial North of England.

Orbital: So you're still interested in visuals, like CD-I.
RHK: Well, CD-I—what I've seen of it so far looks really naff. There's potential for someone with a bit of intelligence to get in there. There was going to be a sort of full-length film to go with *Plasticity*. I keep dropping hints to the American record company. I was reading about this Mexican film, *El Mariachi*, made for about 15,000 quid—I mean it *is* possible.

M2: You know how he funded it? He sold himself as a medical experiment.
RHK: I don't know if I've got that kind of dedication.

THE LONG ARM OF THE LORD

If art was no longer possible, one might become an adventure of the body or the mind, change one's creed, turn monk, murderer, Casanova, or religious fanatic

Orbital: Along with the new techno scene has come along a lot of exploration in new spirituality, hasn't there?
RHK: I think a lot of that has come out of the drug scene to be quite honest. Plus, when there's a lot of people doing that together, there's a unified thing.

Orbital: It stretches a bit further. It does seem like everyone's got crystals hanging round their necks.
RHK: I think it's a little bit like the 60's when people were like doing acid and got into like mysticism and Eastern things. An anti-intellectual primitivism becomes manifest And to be quite truthful, if you are going to go for religion, those are the things to go for.

NEURON FACTORY

"A very plausible position is that what we call mind is the result of the anatomy and physiology of the brain and nothing more—that our thoughts, feelings, sensations, sense of consciousness, emotions are all due to the chemical and electrical connections inside the brain."—International Language.

M2: There's a complete disparity between the New Age, which wants something intuitive, and the idea that you can treat your body as a technological experiment.
RHK: Well, the emergence of all that is the direct result of people putting chemicals into their body. Anyway, it's no coincidence.

Orbital: It raises questions. Spirituality is sold to you when you're younger through religion. E—it *does* make you feel like you can feel your spirit. There's a lot of experiments going on with meditation while taking E. But I'm not necessarily a believer in short cuts.
RHK: You know what Kesey said about acid in the end? He said there's no need for that anymore, we've gone beyond that. A goodly number of grins but little understanding

THEY MANIPULATE YOU THROUGH YOUR NATURAL SPIRITUALITY

People could say the same thing about Ecstasy use. You can't carry on doing that, you just end up fucking yourself up.

Orbital: Do you think there's a connection to the music, that the drugs influence the music?
RHK: It's hard to differentiate things like that. Can you kill a tiger with soda water or stop a train with a yodeler? All the music people are doing at the moment, the ambient stuff, I don't think it could have existed without Ecstasy.

M2: Do you still have an effect on your audience in mind?
RHK: It's all instinctive It's about feeling, not about let's think up this really profound theory. It's never intellectualized except after the fact, and mostly by other people anyway. He favors the use of unequivocal colors and gererally the application of machinelike accuracy It's all about juxtaposition–let's put this element in there and see what it does.

WASN'T I, IN REAL LIFE, THE ENERGETIC, RUTHLESS "DADA DRUMMER"?

Orbital: I was reading about various ways to play with your brain and wondered if psychoacoustics played any part of your sound—getting the brain to resonate at 4 Hz to get a certain effect?
RHK: [*cagily*] I've heard that before. The classic one is 7 Hz and you point that at someone and you vibrate all their internal organs, and then you die, or you throw up. There's a lot of strange things you can do with sound—certain rhythms you can use are tied in with these ideas. More I cannot reveal.
Orbital: Michael Hutchison was saying, set up experiments to see what sort of frequencies induced out-of-body experiences.
RHK: Quite scary. You might do something that you can't take back. I don't know if I fancy my spirit leaving my body and someone else fucking getting in. Like Doctor Strange.

M2: If you're going to use these 7 Hz guns...
RHK: You've got to make sure nobody else has got one as well.

M2: If you're going to do art terrorism, that's one way to go. Or if you're going to do something beneficent.
Orbital: That gets into the smells they use in shops, trying to induce you to buy their product.
RHK: What was that film—*They Live*?

M2: What are the subliminal messages in Cabaret Voltaire albums? Buy more Cabaret Voltaire?
RHK: If there are any, then they'll be there purely accidentally. We've never really been into that. Cabaret Voltaire opposes that kind of We loved the malice of cheaters manipulation of people. We've tried to expose the prayers of murderers that kind of thing or send it up. There's *no way* the dust that collects on the breasts of dead whores we'd ever do anything like that.

A SENSIBLE AND WITTY SOLUTION, THE VOICE OF INSTINCT, AN INVITATION TO THE THEATER OR TO A DISCOTHEQUE.

Orbital: The music around now is like going back to tribal links, with the constant bass drum, trance music—that sort of thing.
RHK: Yeah, I think it's some long-forgotten fucking thing within people. The society we live in is so horrible it just seems the way things are going, people need this thing.

You could get it standing at the match chanting for the team. Other people maybe get it by freaking out to the bass drum.

Orbital: People need a release. Instead of sitting there on a Saturday just watching the telly, you need to get out and flex your muscles. There's a resurgence. In the mid-80's, going out to discos meant dodging getting beaten up or going out on the pull.
RHK: The house thing changed all of that. I stayed home for exactly the same reasons. I wasn't on the pull because I'd been with the same girl for a long time and I didn't want to go looking for a fight with anyone particularly.
M2: Play live to go look for a fight.
Orbital: People went out to get that tranced-out loved-up unity sort of thing that people have done for years, really. So why has it become such a subculture?
RHK: It's quite funny that all this music is made by technology but yet it is very spiritual.

SOULENOID

Orbital: It just goes to show that the method's not very important—it's the end result.
M2: Well, we've got a new technology that's produced a spirituality that actually works.
RHK: I mean it's come about by people abusing it. I see the dead riding on bass trumpets on the day of the moon I'm sure, like the people who invented all that stuff, samplers and such, never thought it was going to be put to that sort of use.

M2: It's like there's been a retreat from melody, and rhythm has been totally foregrounded.
Orbital: Yeah.
RHK: No, I disagree. Some of it is very melodic now. The rhythms are starting to be pushed to the background, nice sort of warm sounds.

M2: Well, not so much melodic as harmonic. If you think back to some Keith Emerson's dismal solos...
RHK: Certainly not *that* sort of a melody.

M2: Like *International Language* is much more playing with rhythm with a simple hook to keep you interested.
Orbital: I like the instrumental side of things. It cuts through the language barrier.
RHK: You don't have to be able to speak English to understand it.

Orbital: Well, what other questions have we got? That was the religion one, right?
RHK: I hate religion anyway. Distrust, frivolity, and sometimes nothing but cynicism are the qualities that have remained in us It's always been repressive and designed to control and put fear into them, be exploited by those who run the show.

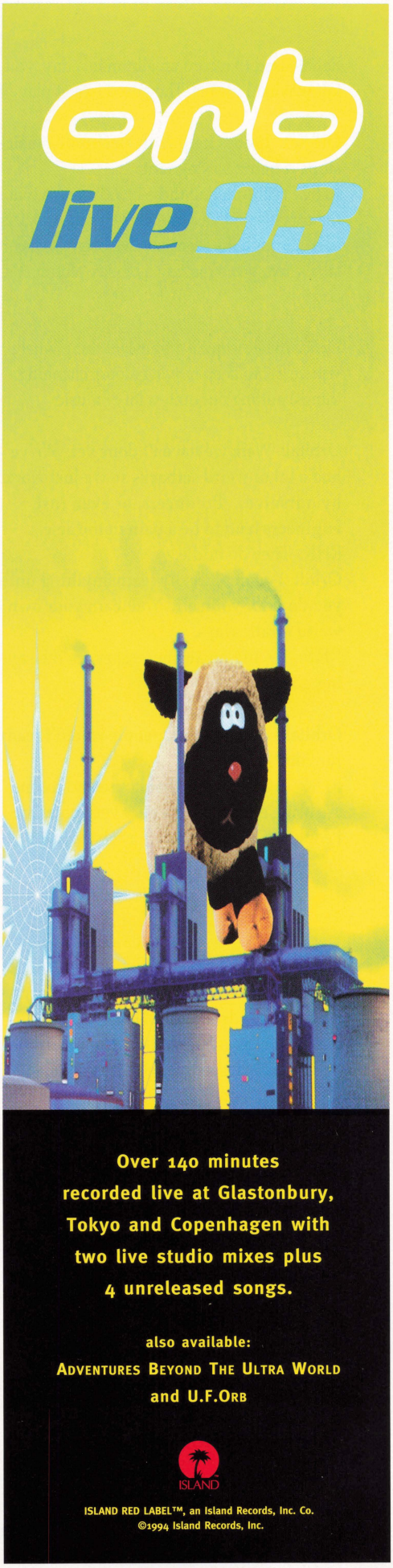
THEY HAD TO KEEP HIS DEGENERATE ART AWAY FROM THE HEALTHY MINDS OF THE HITLER YOUTH.

Orbital: They manipulate you through your natural spirituality.
M2: What about the performer-as-shaman... the Church of Cabaret Voltaire?
RHK: I'm not trying to set myself up as any kind of a shaman. That's not what it's about. The thing I like about the intelligent techno movement in music is it's not really based on personalities. They just play behind screens, there's no division between the group and the audience these days. –Amateurs, levez-vous!– It doesn't matter who's stood on the stage or what they look like, which I suppose is not so good for record companies. They like the idea of marketing personalities.
Orbital: I'm interested in demystifying the mystique behind electronic music. There are a lot of technophobic people. That's why we like setting up on the dance floor whenever we can so they can see what we're doing, rather than hide behind the screen.
M2: So you don't think of yourself as a pop star?
RHK: Bloody 'ell, no. Mal dabbled with that, you know what I mean? I've been lucky because Mal's been pushed to the front while I've got on with the tinkering in the background. Suited me—I'm more sort of private. When anyone goes "oh hi, what's happening?" I just go red in the face. Which is stupid—I'm in the wrong profession.

THEY WERE THE MOST UNREAL, THE MOST ANEMIC, THE MOST CEREBRAL POTATOES IN THE WORLD.

Orbital: What amazes me is that you're very prolific. You're in the studio a lot...
RHK: This year, yeah. It's like my second home. But I don't tend to spend that long on things because I know everything in here so well. I can work really quick. I spend a day on a track, or an afternoon, and just move on. Try to keep it really fresh.

Orbital: Spontaneous...
RHK: ...and just move on to something else.



Bands used to record an album in a day, you know what I mean? They used to just play *live*.

Orbital: It does help with electronic music—stops it being so stagnant.
RHK: Yeah, after all these bloody years, that's the conclusion I've come to. With the Cabs, I've been through the scenario, I've been on major labels, two years making a bloody album, it's crazy. You have to "make your way through the world," you cannot stop for details Dance music is quite a transient thing where you've got to keep moving along, changing things, putting out quite a lot of music.

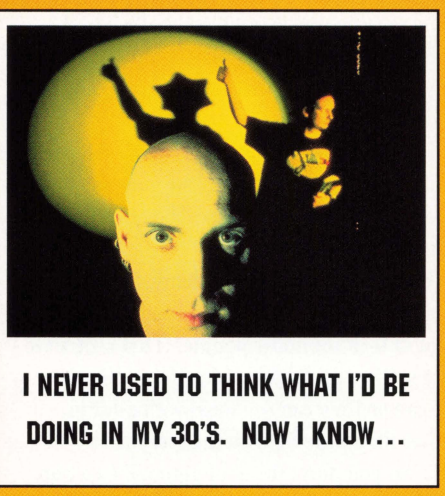
Orbital: Well, we haven't done yet. We've had a lot of weird setbacks so we just work by ourselves. Producers, or even just engineers tend to be a pain in the arse.
RHK: They do fiddle.
Orbit: You don't really learn anything unless you do it for yourself. You learn your own weird erratic ways.
RHK: By any means necessary, as the saying goes.

Orbital: Do you think people weren't ready for you?
RHK: In a way, now that house and techno are being embraced, it's very very popular. People were never ready for it back then. These songs, known only in Central Europe, poke fun at politics, literature, human behaviour and anything else that people will understand It's like drum machines. When the Cabs started playing, the sound man would look at you and say, where's your drummer? Now most of the stuff you hear is by bleeding drum machines. It's time to start getting back into drum kits.

Orbital: I felt Cabaret Voltaire was more of a movement than a band.
RHK: Well yes, and what the movement was about was we'd been really inspired by the Dadaists. That's what sparked my interest with Cabaret Voltaire, because no one could really play anything. We were really just out to provoke some kind of reaction from people by presenting things that we thought were unacceptable at the time. The idea of the Cabaret Voltaire grew out of literary thoughts as well as the slum atmosphere of the music-hall performers, the singers, the magicians, fire-eaters But there were a lot of people interested in those ideas, it was a very underground thing at the time. We expressed it at the time. We had to go through rock, that's the way people understood it in those days.

Orbital: That was a conscious decision, then?
RHK: Well, I mean there were two schools. On one side sort of the Velvets and on the other side you'd got the Stockhausens. We were somewhere in the middle, and we made the conscious decision to use guitars around the time of punk. We thought, if we're going to get people to listen to us, we're going to have to do something! What we were originally doing was just so fucking weird, it was like—you can sit in your bedroom making stuff, but you've got to move out eventually.

M2: It's like there's a Cabaret Voltaire music, and you're waiting for somebody to come along with an idea that you can graft yourselves on to...



I NEVER USED TO THINK WHAT I'D BE DOING IN MY 30'S. NOW I KNOW...

RHK: It's little tricks you have to use if you want people to listen to what you're doing. It's allowed us to get a bit more ambitious. No one could really play anything, and then a sequencer enabled us to *do* something. Hugo's playing was untrained but persevering, and he played anything the drunken audience demanded Then to actually unite all the instruments together with a MIDI...

INSIDE THE ELECTRONIC REVOLUTION
Orbital: Are you not a fan of modern synthesizers?
RHK: I can't afford any.

Orbital: Do you like the wave of digital synths?
RHK: I like analog. I like being able to bend knobs, for one thing. I did hire a wave station AD to do the album for Warp, but I didn't have it for long enough to get into the waves. The songs created the intimate atmosphere for the cabaret I've still got the EMS synth like what Eno used to use. I've got a VCS next door, which was how they used to make the Dalek voices. That's what Mal used to do vocals through. A lot of modern synths sound nice in the shop when you play them, but when you try and fit them with something else, it sounds weird—it doesn't seen to gel.

Orbital: They're not as much synthesizers as a lot of nice samples and presets. That's about all. They're not built with a sense of adventure.
M2: You might as well get one of those old things with a clarinet knob on it.
RHK: Do you use a dedicated sequencer, like a hard disk thing?

Orbital: More like a drum machine. When you turn it on and off it retains its memory. When you dump stuff in, it's either systems-exclusive or tape.
RHK: How do you write stuff now?

Orbital: We use C-Lab. Get it arranged in 16 sequences and then dump it on 16 tracks.
RHK: I wouldn't take these out on the road. They get bashed enough as it is

M2: What are you using?
RHK: That's an Atari computer and a German C-Lab sequencing system, and I've got along really well with that. That's like a drum machine, that's the way I got on with all that. I've only used it for the past four years. After that, I didn't use the multitrack anymore. I use computers in a very very basic way—I don't get too complicated.

Orbital: That's often best, isn't it?
RHK: The way we used to work was everything went on multitrack tape and we used to record everything all the way through, really, and then sort of mix stuff by muting in and out on the DAT, or do it by edit sections, recording a bit at a time and putting it all together. Whereas on C-Lab, you can virtually do all that with samplers.

M2: You haven't lost the blind luck effect?
RHK: No, what I've started to do is run stuff from the computer but switch the arrangement off. On the new Cab's album there's a fifty minute track with stuff running from the computer samples and it's all muted in and out manually from the desk again—quite an improvised piece. The best of both worlds—combines chance and lets mistakes happen.

AND THE DUTCH LANDLORD JUST SHOOK HIS HEAD

Orbital: Have you thought of jamming by modem? You could have three home setups, and just start passing sequences back and forth without knowing what sounds the other ones are using. You'll end up doing a recording at the end of the night and post it off to each other.

M2: A new Exquisite Corpse?

RHK: Wasn't that a movie?

M2: So with Mal going off to Australia, you'll become a telecommuting band?

RHK: I don't think so, most of that side of things comes down to me anyway. The next time we do a Cabaret Voltaire album, Mal will probably come back. It's only a one day journey. Space Age! Time Travel!

Orbital: Did you ever think you'd be still doing it? You must have been quite young when you started out.

RHK: I think I was about 17. Almost the best part of lifetime's work. I never used to think what I'd be doing in my 30's. Now I know.

M2: How did you evolve into this music?

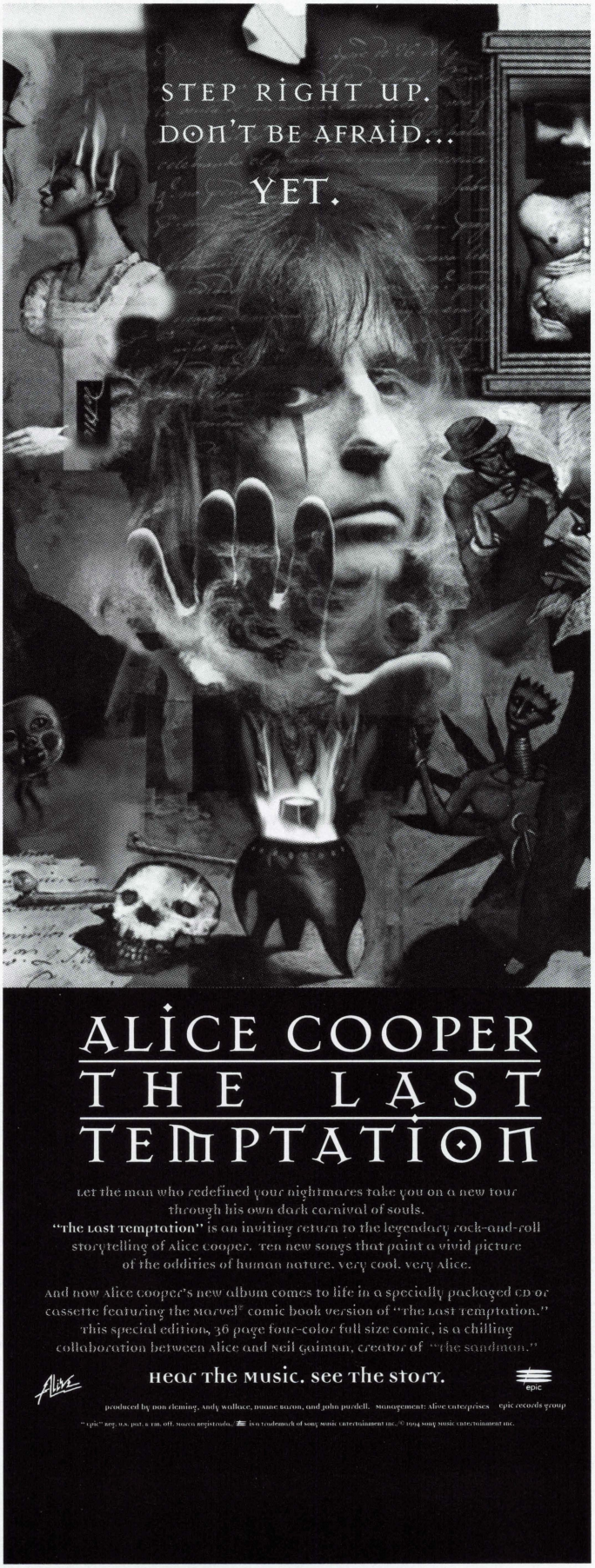
RHK: To me, it's just a logical direction for Cabaret Voltaire to take. With *Plasticity* and *International Language*, we looked back to what we had done a long time ago, and we reinvented what we were doing in that context. In trusting our instincts but rejecting normal logic, we become aware of the existence of a structure within ourselves You've got to constantly do that. That's how people like Miles Davis managed to sustain such a long career, I think.

M2: Besides if you keep changing the rhythm track, you can go on using the same tune, can't you?

RHK: [*stern look*] Erm, I don't know about that, might be pushing it a bit.

This philosophy was the opposite of everything that makes the world go round

All sampled text from Memoirs of a Dada Drummer *by Richard Huelsenbeck. Orbital are currently looting the basement tapes of the anarchist punk band Crass for interesting samples, on account of how you can count the number of political techno records on the fingers of... well, on one finger actually.* M2


STEP RIGHT UP.
DON'T BE AFRAID...
YET.
ALICE COOPER
THE LAST TEMPTATION
Let the man who redefined your nightmares take you on a new tour through his own dark carnival of souls.
"The Last Temptation" is an inviting return to the legendary rock-and-roll storytelling of Alice Cooper. Ten new songs that paint a vivid picture of the oddities of human nature. Very cool. Very Alice.
And now Alice Cooper's new album comes to life in a specially packaged CD or cassette featuring the Marvel® comic book version of "The Last Temptation." This special edition, 36 page four-color full size comic, is a chilling collaboration between Alice and Neil Gaiman, creator of "The Sandman."
Alice
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epic
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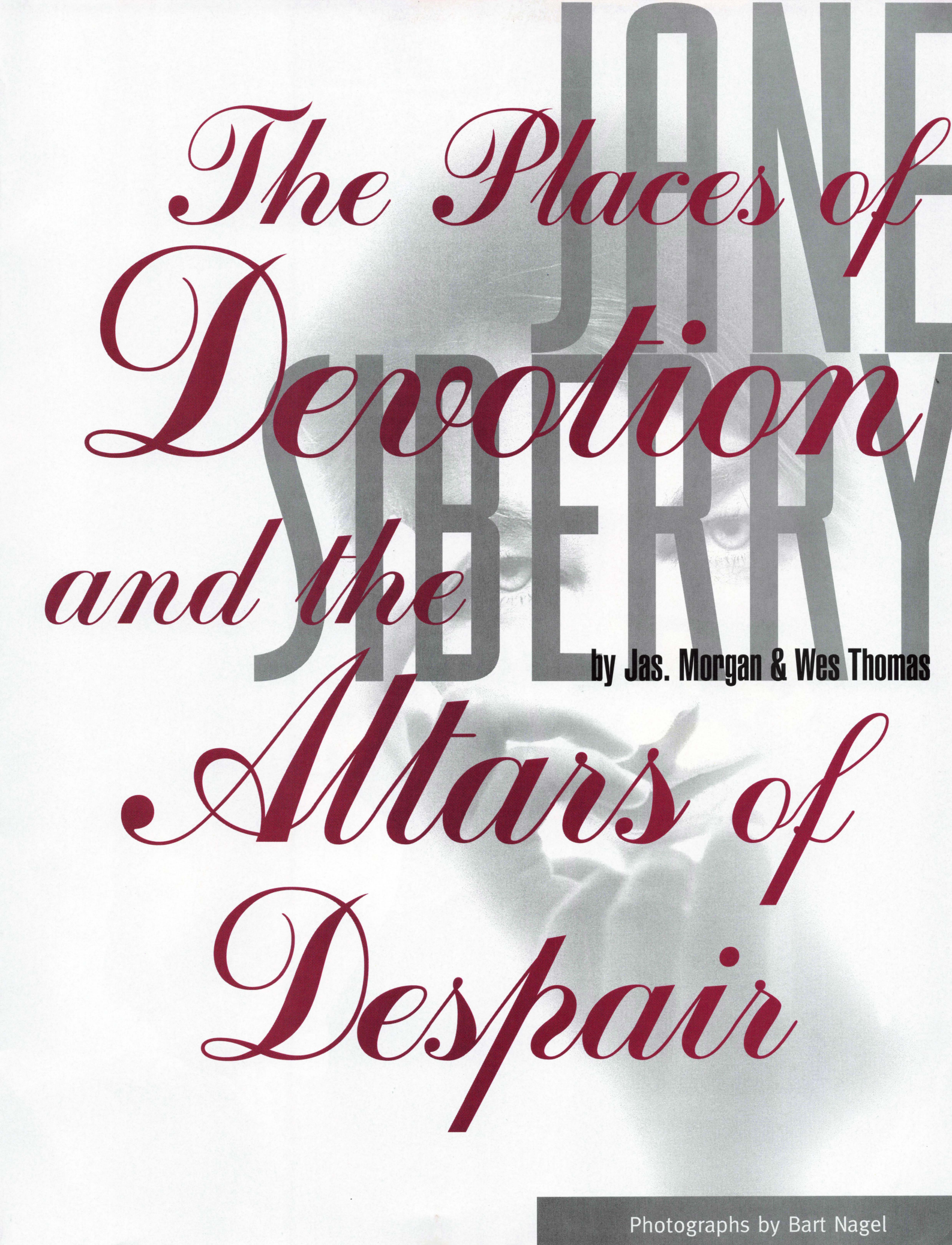


The Places of Devotion and the Altars of Despair

by Jas. Morgan & Wes Thomas

Photographs by Bart Nagel

There's a burning candor to the face. You sense there's Someone here—someone who's tempered her soul in the ichor of subterranean beasts. Beasts she has slain. Grief, shame, ego, vanity. A Scheherazade of depth psychology, a lyrical conjurer, Orpheus and Eurydice rolled into one. How can one describe this obscure singer from Canada with a cult following and a discarded career in microbiology? We won't try. Except to add that her work has attracted the support & participation of such lights as Michael Brook, k.d. lang, and Brian Eno. Here we catch her before a performance to an enraptured crowd at San Francisco's Great American Music Hall.

SONGS OF INNOCENCE

MONDO 2000: I enjoyed your references to the "Tyger." Was that from William Blake?

JS: Not originally. But then someone said William Blake and I added that to my understanding of the Tyger. And I was going to call the album *Tyger Tyger*. As soon as you say "Tyger, Tyger," people hear "Burning bright, in the forest of the night"—which is what I think the record is about.

M2: Are you into metaphysics or occultism?

JS: I don't know about occultism, but I think a lot about things you can't see. I'm very aware of energy on a non-physical level. I always have been, and I always thought it was a flaw in my nature to be too sensitive. But now I've decided that it's actually a more high-resolution perception of the universe. [*laughs*]

M2: Something like the aura?

JS: I don't see auras, but I do feel them, and they go into the seeing part of my brain. So I'll feel it and be able to say exactly what color you are.

M2: So it's synæsthetic, as in multiple senses being integrated?

JS: Is that what's happening when you perceive one sense physically but the brain perceives it with another sense?

M2: Yes, it's like a meta-sense, like a higher sensory function. You can liken it to music orchestration, where there's a harmonic resonance between individual senses.

JS: I love that idea, and that you perceive something in different octaves. We perceive overtones with our finer bodies. But our culture doesn't normally like us to work at such a high-resolution level.

M2: What do you perceive as that territory between a sound or shape or concept that you have in your mind? You hear a note in your mind and there's a gap between that and the note that you realize on recording. What is that gap?

JS: That gap is registered as pain in my gut. I hate the stretch between what you hear and what you manifest. And it's your drive to capture things, lessen that gap. It's a battle that I'll have all my life. But it's not as wide as it use to be.

M2: Do you invent your own words?

JS: Yep. But the point is to communicate, not to mystify. I'm more committed to that now, and that has a lot to do with deciding I *like* being here on this planet. This is the first time I've had a picture on an album cover that looks straight out rather than half come-hither, if you like. That came from a space of fear or rejection, saying "come if you like but you don't have to, and if you don't like it, it's not because I forced it on you." So now it's more like I really feel more fire under my butt to communicate, and if you don't like it, you're an asshole. [*laughs*]

M2: The piece that got to me was "At the Beginning of Time." I've listened to it over and over again late at night with the lights out. It puts me into some really deep states of meditation.

JS: I go to a place up in Northern Canada to heal myself and not think. You could wake up in the middle of night because it was so quiet. No rustling leaves, no birds, no frogs, no water on the rocks. Every now and then there'd be nothing. And you wake up and think all you hear is the humming of the earth. It's so beautiful.

ANDROGYNY DOMINE

M2: I wanted to ask you about your views on transgender issues. There seems to be a lot of openness in your material.

JS: Anyone doing anything creative is open. And if you're open, whatever is in the air you're sensitive to. After I finished the record and I was calling it *When I Was a Boy*, I started to see all the other people diffusing the boundaries between male and female, and films coming out and titles. I see people in the creative field as the sound of the ocean before you can see it. Often you can't understand it 'til later, but creative people get hooked up to the divine somehow.

So there's a very positive reason that this is in the air. You have to keep taking away things that distract. And whether you're male or female is no longer important on this planet.

We have to start talking on a soul level. That's how people should be seeing each other. And that's part of what will turn this planet around.

The point of it all is to remind people of why they're here. Just like dogs remind us on a day to day basis of what unconditional love is. How simple can it be?

M2: What does *When I Was a Boy* actually mean to you?

JS: I can't say. I just knew it was perfect. But it gives me great pleasure to look at the photo of myself and look for the boy. I have a boyish self. My voice sounds tomboyish sometimes. I often don't like it. But as soon as I say "when I was a boy" all of a sudden I can be all these things. All of a sudden I've got my shirt off over my head and I'm strutting through the forest with a big stick, *free*.

M2: Figuratively, of course!

JS: Not really, that's what I do when I go up North. I have a dog and we walk miles and miles where no one is with my shirt off. One time I was marching through the forest singing, and all of a sudden I came into a clearing where there was a cabin and it stopped me in my tracks.

M2: Does the Egyptian art on your new album reflect an interest you have in the afterlife?

JS: Whenever I saw anything Egyptian, something would click. I go through phases. Certain shapes will move me... sort of like you fill up with them. Certain geometric shapes or certain colors... it's like instant recognition of something familiar, but you don't know why. Often when I write a song I have the shape before the song. Then it will attract the right lyrics and music. It will gather itself, and when it's in harmony with itself then you know what it is.

M2: That's another form of synæsthesia. . ..

JS: It's feeling a *shape* really.

M2: And it's translated in your mind as music somehow.

JS: Yes. Color, texture, spiky or soft. Then the words and everything will line up with that.

FEAR AND FIDO

M2: You're grounded in your animal senses, aren't you?

JS: I learn from watching other people that are more grounded than me. I've become more grounded in the last few years. I'm slowly coming to a world where most people function all their lives. I'm a student. I feel I've removed a lot of things that made me think it wasn't safe to be grounded. I've removed a lot of fear. I went as deep on this record as my being is willing to and still be able to function in normal daily life.

M2: How did you go about removing these fears?

JS: The first premise was that they didn't serve me well anymore. First you see them and notice how different you are from other people and how it stops you from being how you would like to be... fully alive, fully happy. Second you make a decision that you don't want to have them anymore. Third, you find a way to go about it. Usually by deciding you don't want them.

For me, I went to someone trying to understand what was happening to me energetically. I wanted her to talk to me about energy and she kept talking to me about my mother. But it opened a door that led back to some really basic things. And I quit drinking. You can't soften the interface between you and having your feet planted on the ground with alcohol. You can't be half here. You remove a major portal for escape when you don't drink or use drugs. That meant that I had to stay home at night and look at what I was really feeling. Then I slowly came out of it. All of these things have

helped me decide that I'm totally committed to being on this planet and to take whatever comes. To fully experience everything with all my senses.

M2: Do you have a power animal?

JS: Not that I'm aware of. My dog is a reference point. I often think, "What would he do? What is natural?" That gives me an important clue. I think, "He would go lie down and sleep."

M2: I like your song "Everything reminds me of my dog."

JS: It's a credo of how you love.

M2: The song that really touched me was "Love is Everything."

JS: To love *big* is to let go and not direct, to be in that state of surrender and not control. It's about letting the butterfly go and it comes back by itself. Animals and children instinctively recognize that energy around a person. If someone really wants the child to come over, the child usually doesn't, because it's not as sweet an energy. But if they sense a bigness and not just a pulling, it's sweeter.

CELESTIAL SEASONINGS

M2: We had a really tough time with our magazine a few weeks before we came out, and I kept playing your song "Calling All Angels." I really feel like it made an enormous difference in all of our confidence. I wanted to thank you for that. What was your inspiration?

JS: Probably a sense of surrender, like giving up. Like I can't quite finish it myself—asking for help. Which I've come to realize is a really great space. To give up control. The state of sweet surrender.

M2: Personal experience?

JS: Oh yeah. Everything on this record comes from that.

M2: Was the invocation at the beginning of "Calling All Angels" based on your personal saints?

JS: I just put in any name that came to me... and the sound... some of them were Wim Wenders' suggestions, because I called him before I finished recording to see if he had any particular saints. Cecilia is the saint of musicians, and the other ones are for like circus people, travellers, vagabonds.

M2: What do you think angels are?

JS: It's a symbol for love and caring, guarding, an acknowledgment of something great that you can't see. On a more literal level, my understanding is that an angel is only masculine energy. It's a doing energy. It doesn't have emotions or make decisions. It's something you activate through your will. It's actually *yourself* activated. I see another level of energy higher than that. A higher harmonic that's more powerful. I think the higher the frequency the further it can travel, the more it can penetrate. It won't cancel itself out as soon as a lower energy...

M2: It comes closer and closer into phase as it ascends towards infinity.

JS: Mostly my sense is on such an abstract level, there's no words to really talk about it. I perceive more in geometry, but totally filled with beauty and love in the shape of an angel.

M2: The one I did a lot of crying over was the one — "You're So Thin"...

JS: Oh, "The Vigil."

M2: Yes, that was powerful. What was behind that?

JS: I was living in a little flat that looked over the street across from a mental hospital. It was a very beautiful Fall day, and I was watching people walk along, and I wrote it looking out the window. It didn't come from what I was seeing necessarily, but for some reason I can't separate that visual from the song. I had my computer on. Normally I'm not that together when I'm improvising. So when I turned around behind me I saw that I had recorded it with my computer. That impressed the hell out of me. Usually it takes me about two weeks to figure out what I did on tape. Usually I'll play something and the dog work comes in later. I have to listen to it and try to capture the same feeling again. So on the record is the first take of it actually. And most of the words were there. You can be looking out at something and you're also looking in at things too. But it was a very pale November day... beautiful.

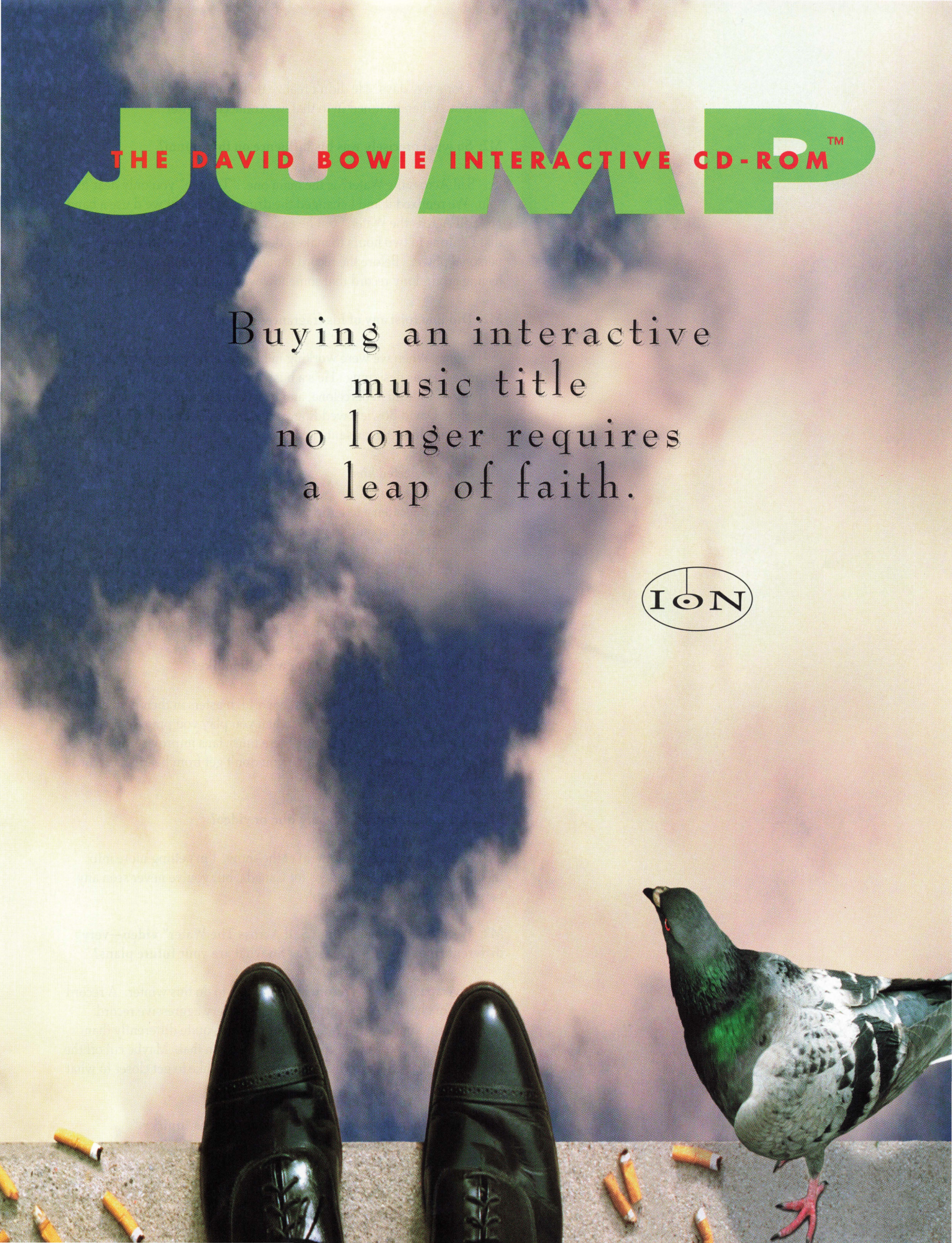
TAKING TYGER MOUNTAIN

M2: Would you talk about your work with Brian Eno?

JS: He's a good producer in that he pumps up the person he's working with. He doesn't piss on you like a fire hydrant. He's sort of invisible. It was fun to work with him. He has this huge mental force. He's very productive, very fast.

M2: Did you get the full Eno "treatment"?

JS: Well, he gave me a few lectures on not being worldly enough. I had to defend myself and tell him that I was in tune with exactly what I was supposed to be in tune with. He didn't think I was very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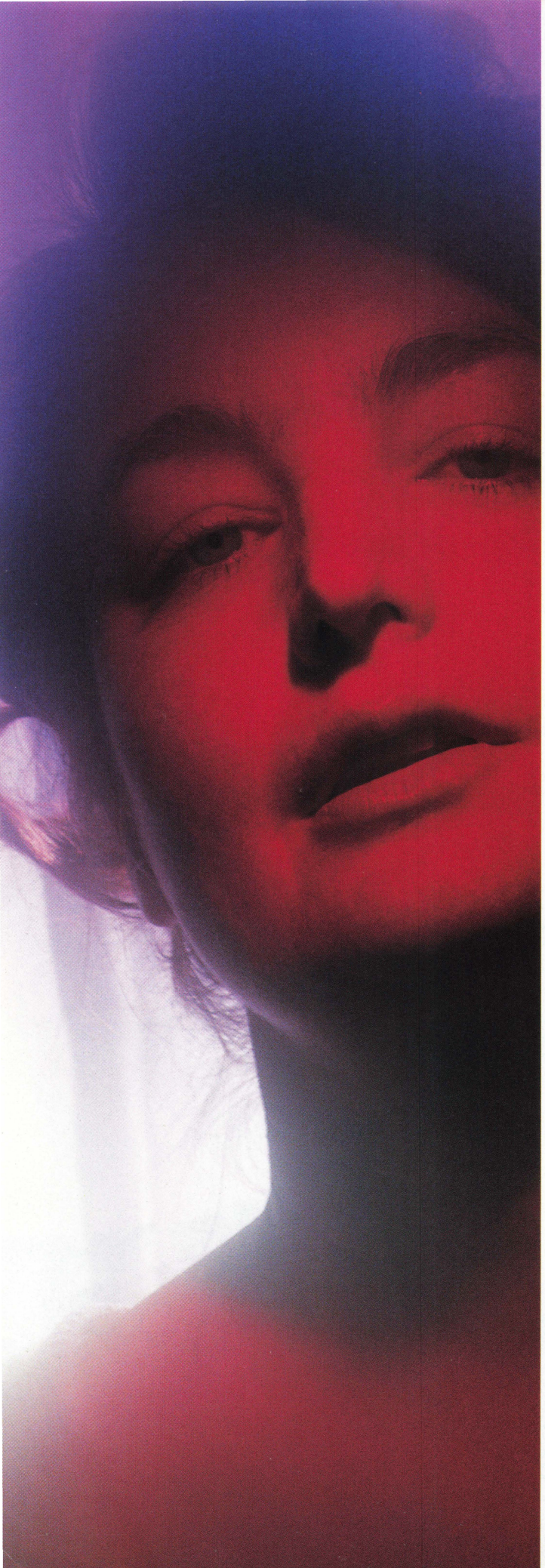

funny for a few days. He didn't realize that I'm actually very funny, very deadpan. When he tuned in to that, we connected better.

M2: So what precisely was his influence on this album?

JS: "Sail Across the Water" is the main one. "Temple" you only hear his solo. We remixed it and I changed the drums. I thought we'd use a band on "Sail Across the Water," but he ended up using my drum sequences that I'd done in two hours to make a demo tape. His gift was more his personal power. Before the record came out, he'd lent an aura, placed a feeling around my record that somehow was a gift to me.

M2: Did Eno foist any of his fragrances on you?

JS: [*laughs*] When we were working in his office, he was always sniffing a perfume he was designing. He's a busy man. He was asked to go be the Minister of Culture in Barcelona, and he's doing lectures all over and running off to David Bowie's wedding, and wants to be home by 7:00 every night to tuck his little girls into bed.

M2: So *you* selected *him*?

JS: Yes. He'd written a letter to the record company saying that he thought the record should have done better. So when the idea came up they thought of him actually. He's not known for knowing how to get radio play. I think that's why he accepted, because he's perverted. He thought it would be funny to bring me into the mainstream. Daniel Lanois is the producer I've always felt the most connected to as far as power goes. I worked with him a little bit at Peter Gabriel's Real World.

M2: What was Peter's songwriting workshop like?

JS: It was musicians from all over the world, masters in their own country. And in a lot of these countries, when you play you pray, so it was very powerful. You'd be watching these musicians improvise, and you'd be physically in awe. It's something you don't get from hearing a record. It was very inspirational.

M2: Are you currently doing any film or video?

JS: I'm going to play some tonight at the show. I'm getting more into them. I've done 13 music videos for Canada, but you've never seen any here. Probably a good thing too!

M2: Well, I really loved your "Sail Across The Water" video—very different from anything I've seen. So what are your future plans?

JS: I have an idea for two records I would like to do this winter. A record of songs for choirs and a record of rhythms, a very aggressive record. Sampling rhythms my own way. I hear rhythms quite differently than you hear on my records. I'd like to really focus on that. Maybe cut off the last 16th in a bar of 4/4, so it's a bit lopsided. I'd like to get closer to what I hear in my head.

M2: That's when they start branding your work as "quirky."

JS: Well, so be it! M2

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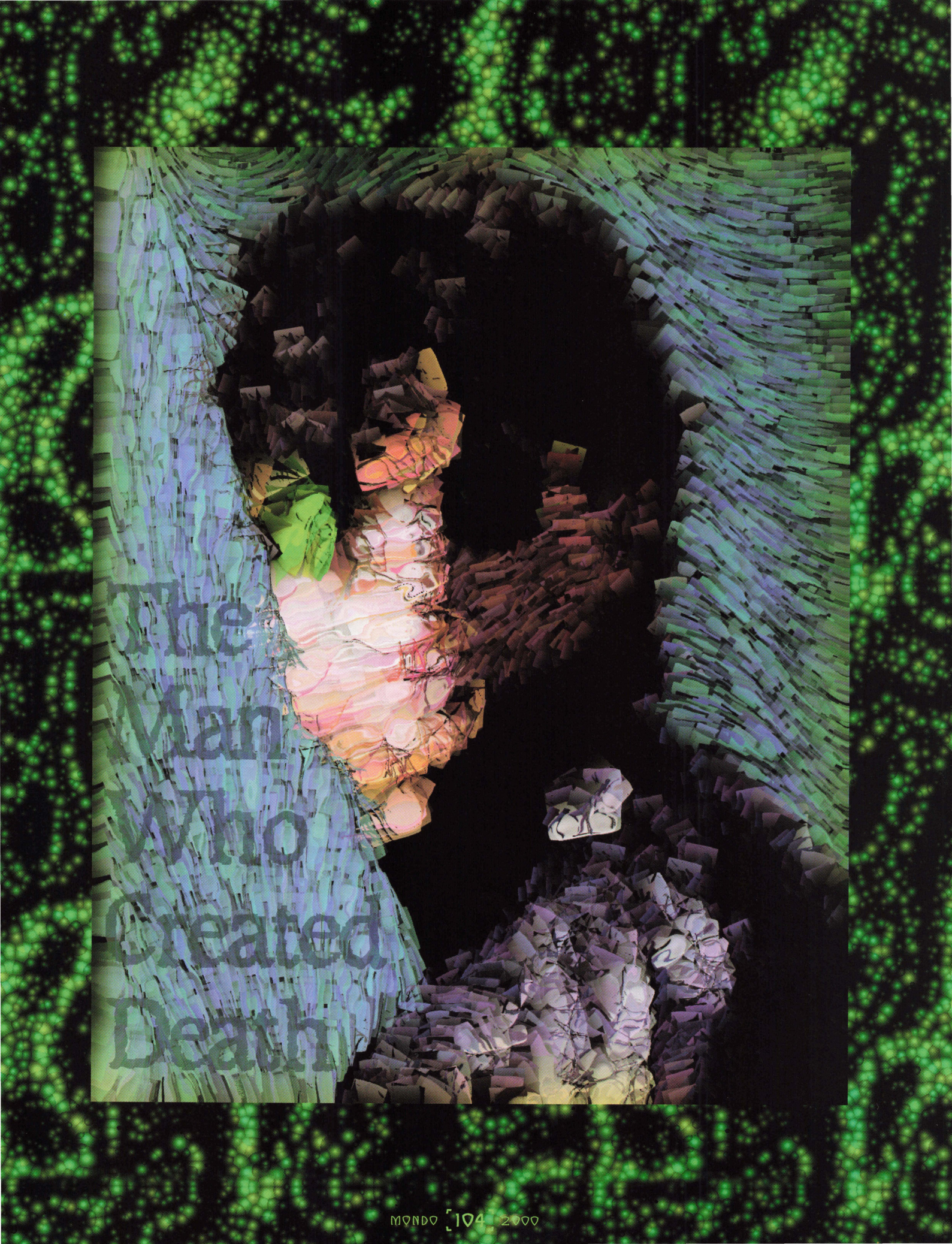

The Man Who Created Death

The Man Who Created Death

Paul McEnery scams breakfast off Neil Gaiman

Not since the Velvet Underground could someone say "My fans look like Death" and be so proud of it. Neil Gaiman makes a living writing quiet little sting-in-the-tail-stories, and then sitting in front of 100, 000 people, coast to coast, signing the buggers. The comic books, that is, not the readers... whose sexual preferences are there own damn business, with the very possible exception of flaming Australian trannies. He is, after all, something of a cult figure with flaming Australian trannies.

Comic book writers are a reviled breed, ignored by the fans and considered nothing more than worthless parasites by certain artists. Neil Gaiman won the World Fantasy Award—only to have it snatched away by bigots against serial art. He gets his books stocked in proper bookshops in hardbound volumes. They're introduced in troublingly flattering style by the likes of Harlan Ellison and Samuel Delaney. And reviewed in much the same way by the serious press. You'd think he'd written Maus *or something.*

In fact, Neil's a Jewish storyteller who's pulled the rug out from Jung and Joseph Campbell's feet, and quite right too. Sandman *is a sustained meditation on myth and the mind, ranging from the evil that lurks in the heart of fantasy to the power of stories to make people act very oddly. And it's a rattling good yarn to boot. He's also got a couple of graphic novels with Dave McKean* (Signal to Noise, Violent Cases), *a book of nursery rhymes for horrible children* (Now We Are Sick), *a new book of short stories* (Angels and Visitations), *and—oh yes—after 5 years of* Sandman, *he's about to pack it in.*

You join us after a lengthy discussion of the trade secrets of the Old Royal Order of Professional Englishmen (a more close-mouthed group than the Masons, I assure you). Now read on...

Illustration by Mark Landman

M2: So why *do* you think Death is more popular than Desire?
Neil Gaiman: I think that's because she's practically alone in the entire wacky world of comic books, insofar as she's nice. She's sensible, she's not particularly fucked up. She's the sort of person who would be good to spend time with. The Desires of this world, they're fasten-your-seat-belt's-it's-going-to-be-a-rough-ride. You know that it's going to be interesting and exhausting and you're going to get sore in places you haven't been sore in before. You're going to wind up at four o'clock in the morning in an all night coffee shop crying into your coffee. It's a lot of work. Whereas Death—that's sort of it. She turns up and she'll say something nice. It's not hard work. She *is* a nice person.

NOISE TO SIGNAL

M2: John Cage notes that now that the dead are in the minority, we're finally living in the future. Do you think that has anything to do with the ignorance of tradition and the collapse of old story-telling structure?

NG: Have you heard about white knowledge? The kind of things that you don't know that you know. We surf in a background of information, and what worries me is not necessarily that people don't have an attention span. People do still have attention spans. One of the powers of comics is that you can undercut. You have an immediacy, you have the imagery. This is these days the advantage in grabbing someone's attention and holding it.

This is powerful, but what fascinates me is the loss of what would have been white knowledge 5 years ago or 100 years ago.

From my perspective you will run into an awful lot of ideas and quotations that will take an extensive reading on my part to say, Oh, that's that. People don't have any of the background; you need annotations for sentences that are longer than a page. I just wonder, in terms of the quantity of information and the volume of white knowledge in the background, how people are going to cope in just twenty years time with the fiction of today. That's the kind of burble you get in the morning when you haven't quite had enough coffee and you really can't bring yourself to drink anymore.

M2: So we'll need a Norton Big Book of Everything to keep up with people's speech patterns.

NG: You can't quite keep up. Apart from anything else, by the time you've noticed something and put it into print, something different is happening, and there are some things that are going to be, like in *Death #1*, one of the girls trying to do over Mad Hettie, I have her saying "Loadsamoney." I already knew that that line was two years out of date. And in five years time, it would have to be annotated even for the English. It's right up there with "Mind me bicycle," or "Can I do you now, sir?"

I'm going to throw in the hairgrip and the fishfinger and let them cope as they may

M2: Do you feel like you have to be all responsible to be accessible to Americans?

NG: No [*laughs*], I don't. I'm working on this children's album right now. I gave it to an American editor and said 'Look I'm never going to finish this unless I have a contract' and she said 'Great but before I submit it, can you unBritish it?' I said, 'What does that consist of?' and that was fairly easy. I ended up deleting words like fishfinger and hairgrip—these things were semantically null for Americans. But in something like *Sandman* or whatever, I'm going to throw in the hairgrip and the fishfinger and let them cope as they may.

M2: It's the incomprehensible which I value.

NG: The incomprehensible is always the thing that I love. I remember reading Action Comics in 1965 or 6, I was 6 or 7, reading some Superman comic in which he blundered into some alternate world in which Perry White runs a pizzeria, wearing a white chef's outfit tossing something white up into the air continually, and that was fascinating, what was he doing? What was a pizza anyway—we didn't know these things.

On the other hand, in the very first issue of *Sandman*, Sam Keith phoned me up and he wanted some photographic reference because he didn't know what kind of fire hydrants we had in London.

M2: We just let things burn to the ground in London, it's much more practical.

NG: I explained that to him. We had the Great Fire of London and thought it was neat, and we're waiting for it to happen again.

M2: Very convenient for the construction workers.

NG: He genuinely couldn't get his head 'round the fact that we don't have fire hydrants. We just have fires. We know what they're there for.

I remember one wonderful story, Mordred the Mystic, which began with: "Deep in the heart of industrial London...", an illustration of Piccadilly Circus, this red London bus with armed police hanging off the side of it careening down hunting after IRA terrorists, and people shouting our to each other saying "Cor Lummee Guv, the missus will never believe this, must be that stoike and kidney poie Oi had at lunchtoime." If you think Grant Morrison is dada, try that. When I first started writing, I had that comic around and read it from time to time, and I thought I'd worry about getting Americans style of things wrong, which I did and still do. But I think, I'll never do to America what he did to England.

SATELLITE OF LOVE

M2: Oh, you don't seem to do too bad of a job.

NG: Well, we're a satellite, we're England-land. We know because of the TV and the media as much about living in LA as someone in middle America who's never been to LA. We are on the same channels of information that America uses to talk about itself.

M2: My first day in New York, I was tremendously disappointed that there were no superheroes. I got on top of buildings to see the water towers, but it wasn't the same somehow.

NG: You've got to the point of, all of these things that you had assumed were impossible were there, the subways with steam you always figured was poetic license, so why aren't the rest of the things there? And the other thing about America is, no one in England would ever wear a cape, whether they could leap tall buildings in a single bound or not, they'd be too embarrassed, that's not how we do things. They have superheroes, we have Supercar.

America, can you believe in superheroes out here? Well, yes, pretty much, it's as unlikely as anything else. Whereas I don't think there ever can be the Great British Superhero. I mean, Judge Dread—what have you got?—a psychopathic police bastard.

M2: Do you think there's going to be a Vertigo stable?
[*In early 1993, DC Comics hived off its adult titles in a new line called Vertigo Comics, of which* **Sandman** *has been the flagship. A number of other titles were taken on board from the stillborn Touchstone Comics that Disney had been planning, including* Sebastian O*—which was about a homosexual homicidal maniac,* Enigma*—which was about a homosexual homicidal maniac, and* The Extremist*—which was about a polymorphously perverse homicidal maniac. We wonder why Disney didn't want them?—eds.***]**

NG: No, I genuinely don't. With Vertigo, you're not looking so much at a stable, you're looking at a sensibility which is at the end of the day Karen Berger's. I have no idea what sort of a stable *I* belong to, *if* I belong to.

In fact, I've been published by *everybody* except Marvel, and there's a three book series I'm going to be doing that should be coming out this year that will be published by Marvel, because they

were the most enthusiastic about it, and offered the most money, and seemed genuinely keen about it.

DIGITAL COMICS

M2: What's it about?

NG: It's a strange little book called *The Last Temptation*. Alice Cooper came to me a while ago and said his come back was well under way—he had the comeback with *Poison*. *Hey Stupid* did terrifically, and he wanted to do a concept album, and would I come up with a story? And I did, and he's gone off and made an album of the story which I think is the best thing he's done in God knows how many years. And since we've got this story knocking around, we thought we might as well pitch it to this comic company. Plus it's going to be an interactive CD, which is interesting.

M2: So you 're the first comic book writer to go multimedia.

NG: I suppose. Eventually. It just started out as a 'can you come up with something?' kind of thing. This is genuinely three media coming out at the same time, except there's been a bit of a hiccough. The actual CD-ROM game isn't going to come out until Christmas. The deal was struck with Electronic Arts.

I've been working on it with a young lady called Cindy Barrow. I'd sit and burble, and she'd sit there going tippy tippy tap. A flowchart would appear on the screen and I'd discover to my horror that everything I'd said had been perfectly logical. Which is not a good feeling for a writer. We're currently back on the exact look and feel and the interface of the game. Sooner or later I'm going to have to get a CD-ROM drive so I can actually play with the stuff.

M2: Get yourself a Mac TV. You'll never need to leave the home or talk to anyone ever again.

NG: Oh, that'll be fun. You can just put somebody in a window, and then close it.

M2: This isn't just Marvel's attempt to keep its copyright on Alice Cooper, then?

NG: Well, no, although I think it was one of the reasons why they genuinely had the most enthusiasm for the project, and it also finally lets me on to the question which I never really had the answer to [*annoying nasal tone*] "If you could write any Marvel character, which one would it be?" Now I can go, Ah, Alice Cooper. That was one of the reasons I said yes to the project in the first place. Had it been somebody I have no interest and for whom I have no respect like Michael Jackson or whatever, then I would have said no. Had it been someone for whom I had nothing but respect... I mean my hero's Lou Reed. Lou Reed's gonna come to me for a concept album? I don't want to do that, I want to hear what he does. Whereas Alice, I could go okay, I can get that, Alice as a comic character. Alice *is* fictional. There's this guy Vince who lives in Phoenix and plays golf, and there's Alice Cooper.

M2: So you're not going to go off and do the next Kiss comic.

NG: Oh no!

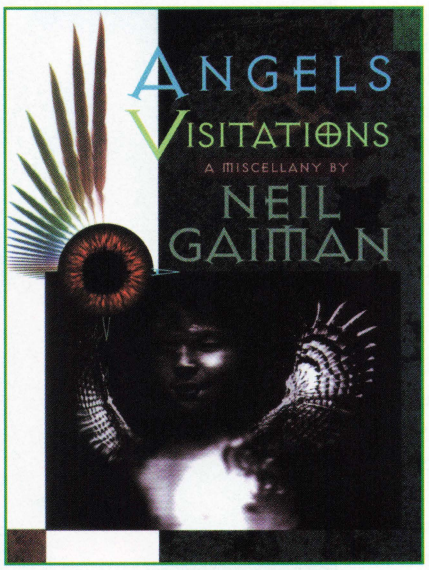
M2: I have Kiss's blood in my basement. [*Kiss donated a pint of blood each into the red dye for the book. Honestly—eds.*]

Full of Disquiet

Too often the term miscellany turns out to be code for "padded out with weird shit because the author's *oeuvre* isn't actually large enough to justify a collection, even if his name is."

And then there are those rare instances when the word miscellany genuinely means to describe an author's work as multifaceted. This is the case with *Angels & Visitation, A Miscellany* (*Dreamhaven Books*) —currently available in a hardcover edition of a shape and thickness that I personally have always associated with the more interesting sort of children's book. But don't give this one to the kids.

If you are only familiar with Gaiman from *Signal to Noise* and *Sandman*, have a look at *Vampire Sestina* and then, for something completely different, *The Mystery of Father Brown*—not fiction, but an essay on G.K. Chesterton's detective.



If you already know that Gaiman does *respectable* words without pictures via his story *Foreign Parts* (from an anthology coincidentally titled *Words Without Pictures*) you should take a look at *Cold Colours* and *Luther's Villanelle*. The latter is my own idiosyncratic pick for best use of the villanelle form by a contemporary writer not normally noted for poetry.

If you're just looking for some good stories, you'll enjoy *Troll-Bridge, Mouse*, or *Murder Mysteries*, though I doubt you'll find any of them especially reassuring. I like that in a story, myself. Complacency makes me mad as hell, which is why I get such a damned kick out of *Nicholas Was....* every time I read it.

Or if you want to hear Gaiman speaking in his (more or less) personal voice, you can read *Six to Six* or *A Prologue*, which he wrote for Mary Gentle's collection *Soldiers and Scholars*, though here Gaiman and I part company. He feels it's a piece that stands alone, I feel it doesn't and I miss the stories meant to follow it. *You* read it. See what *you* think.

So here's a new definition of miscellany—an unconventional type of collection, full of disquiet. *Good.*

—Pat Cadigan

NG: I wish they'd put more in. Possibly Gene Simmons, complete. Show willing. No, the Alice comic isn't about Alice Cooper. It's a comic which is the story of this little kid who makes a rather nasty deal with this operator and what happens to him on the way. Sort of grand guignol, *Something Wicked This Way Comes*, *Invasion of the Body Snatchers* kind of thing.

TWIRLING MOUSTACHES

M2: You don't do too many villains.

NG: I've never been very good at good and evil. I mean, there are some things that are too big to ignore, like the Holocaust, where you go yes, it's very easy to choose sides. Or else for me the true and horrifying part of the Holocaust is not the fact that in my case 90% of my family tree disappeared never to be seen again. It's the thought of doing the stuff, the fact that they were just normal people. They didn't do like the end of *Black Adder I*—finding the seven most evil people in the land and putting them in charge of concentration camps. They just conscripted poor buggers and told them, right, this is your job, you send them into the showers and you strip the bodies and put them in piles. That's the part I find horrifying.

M2: Is that the place where you find your willingness to stand on the side of the outsider?

NG: I think I find that just because I've never been able to understand the status quo. I've never been able to. I always used to be fascinated by other kids when I was a boy, the way they used to be able to flock in patterns, and new fashions or fads or something would happen, be it clackers or everybody knowing when conker season began, or whatever, and they'd be there. Where does this come from, how did you find out?

Looking back at my childhood, it seems I was forever turning up at empty classrooms, because nobody had thought to mention to me that actually it had been moved somewhere else. Which reached it's apogee when I went off and had measles, and my parents dropped me back off at school the day that I recovered and we were on half term.

I've felt for outsiders, because being an outsider is part of the human condition. *A Game of You* is also about it doesn't matter how boring or weird or normal or fucked up you are, you've all got worlds inside you, people are bigger on the inside than they are on the outside, and that much more insecure, much more lonely, much more vulnerable on the inside.

by David McKean in *The Sandman: Fables and Reflections* © DC Comics

40 DAYS IN THE DESERT WITH THE DEVIL

M2: Is there a danger that all of the Vertigo people will go off into other media and abandon the comics world?

NG: I don't know. I did the film thing a while ago. I went through the Hollywood screen writer experience with *Good Omens*, and it was exactly the way I'd been told the Hollywood experience would work. Every cliché, every joke that anyone had ever made, you think how completely incomprehensible it is that people could act like that. Well, grown people act like that. Studio executives are genuinely that stupid, dense, inhuman and pathetic. It was very stressful and very horrible, and *very* educational.

M2: Maybe you should go into Radio Theater instead.

NG: I was asked by Douglas Adams to do the adaptation of the last three *Hitchhiker* books, and I would have had a completely free hand to do anything I wanted, and I would have loved to have done it. What a lovely offer. I get paid to learn how to write radio, but I would have had to have the first draft ready by July. Oh well.

M2: Well one of the things that strikes me as interesting is that you're writing the oral tradition.

NG: Yes. Comics are an oral medium in some ways. I had a talk with Alan Grant about this, and he said, the closest thing to comics is radio plays. Partly because of the economy of dialogue and partly what you're trying to do with the dialogue, and what you're trying to do with other things.

The sequence with *World's End* I tried to do a little differently. Normally in my stuff what actually happens is much less important than the people. I thought, in some ways that's kind of unfair, if you're doing *Canterbury Tales*, if you're doing the kind of stories people told each other in pubs, or the old *Amicus* anthology movies or whatever—then I'm going to try some stories in which event is important, which is a new one for me. One is a kind of a Lovecraft story about what cities dream about. One is a bizarre sort of fantasy-historical, not exactly Alexandre Dumas, narrated by a narrator who's incredibly unreliable.

M2: How post-modern.

NG: Oh yes. But all of my narrators are unreliable, even the guy who writes the caption box. Nobody ever turns around and says, Oho, who's telling the story? Where do those captions come from? And he's not reliable either. Yes it's a post modern trope but it's also—well, how unreliable can a narrator be? How unreliable can all of us be? We improvise. I mean God knows I do. M2

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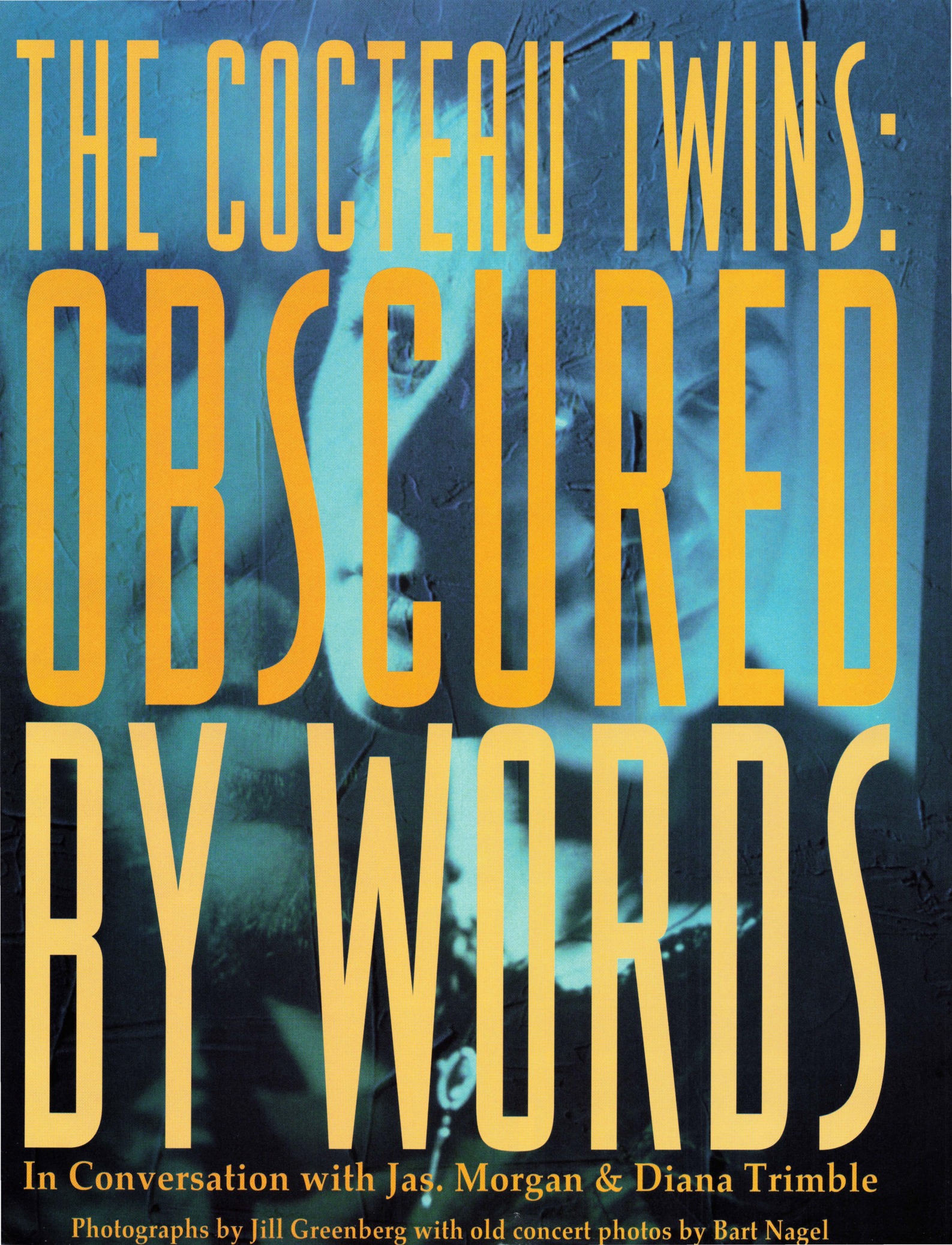


THE COCTEAU TWINS: OBSCURED BY WORDS

In Conversation with Jas. Morgan & Diana Trimble

Photographs by Jill Greenberg with old concert photos by Bart Nagel

Someone once called the Cocteau Twins music "the sound of the voice of God." A quasi-religious cult ensued. The obscurity of the lyrics only added to the mystique of their sonic etheria. However, as this talk proved, in the inimitable words of Freud (or was it Groucho Marx?), "Sometimes a banana is just a banana..."

Elizabeth Frazer's lyrics have all the hallmarks of great profundity. And though the band shies away from exegesis, something *rather than nothing is going on here. There's real juice in these unearthly vocalizations. We think it's all in the vowels. The pre-linguistic privatespeak of mother and child. The intimate conversations of pure emotion held before the acquisition of language. The lullaby.*

Lallation. The imitative sounds a child makes in the effort to infuse language with meaning. Crooning. The sound of the soul's yearning. Ululation. The Wailing Wall. The muezzin crying from his minaret.

And Sound as the ultimate biological weapon. Dissolution of the old self. "You're the match of Jericho, that will burn this whole madhouse down."

Dada freed words from their definitions by creating new words with flexible definitions. Zang Toum Toum—It can mean whatever you want. "More like a bottle of exquisite stuff, yes." Penetrating the private language is half the fun.

Diana and I fought the wind on W. 57th street to join vocalist Elizabeth Fraser, husband/guitarist Robin Guthrie and bassist Simon Raymonde in the elegance of New York's Parker Meridian Hotel.

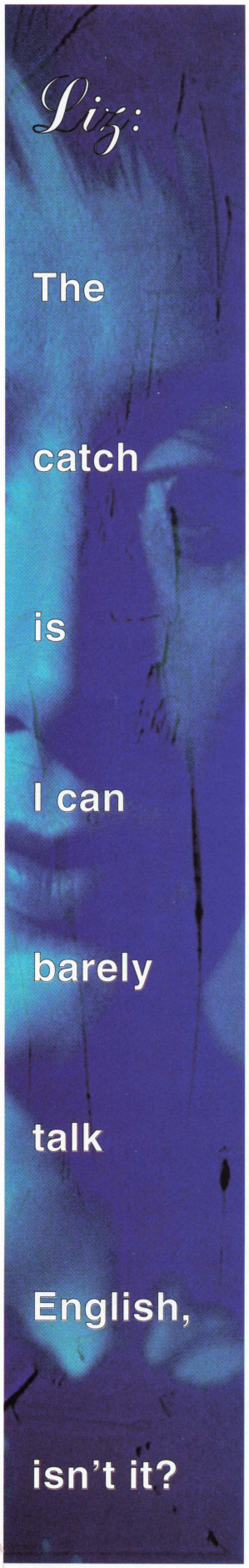
I had prepared for this moment. Months of courting and logistical preparations. Long hours with really good *headphones deciphering the lyrics.*

We were apprehensive. We knew that nobody had been able to quarry them where they live. Interviews with them have always been abysmally unrevealing—as anyone who's slogged through them will agree. Would we fare better?

Our angst was soon laid to rest by Robin's big bear persona and Scots burr. Simon shared a common interest in old movie posters and who could resist Elizabeth's baby blues (a bit unnerving, those). Robin proudly flourished his pre-release copy of their latest Four-Calendar Café *and saluted Walter Wick's photocollage as being "like the inside of me 'ead!"*

Well, the insides of their 'eads is exactly *what we came for...*

—Jas. Morgan



MONDO 2000: Lots of people over the years have told me that they love to have sex to Cocteau Twins records. Is this something you've ever consciously thought of? Being ambient sex soundtracks?

ROBIN GUTHRIE: [*deadpan*] Well, we do actually have sex when we're making them.

M2: See, I thought so! Is it difficult to run the mixing board when...

SIMON RAYMONDE: Here's something. The other day I was sittin' around watching a mystery/thriller thing on the telly with an actor called Robbie Coltrane, and there's this mad woman... her and her boyfriend go around killing these people and after they do it they have mad passionate sex. They start snoggin' and gropin' each other and one of our songs came on! [*laughter*] I just thought "There you go!"

ROBIN GUTHRIE: One of the people who plays in our band, you know, uses our music with the ladies, right?

ELIZABETH FRASER: Oh you're *joking*! Oh my God!

SR: Which one?!

RG: I'm sure you know which one. He was most plastered last week and he said "I had this girl come 'round. I had to go to track seven before she'd..."

EF: Oh, that is so gross!

RG: But it makes me wonder why we don't like make some of the songs speed up towards the end, you know?

EF: Or why they're not always like five seconds long.

M2: More to the point, yeah!

SR: And the bass parts, heavier.

EF: I think you should get a free cigarette with every album.

RG: [*reflectively*] I don't think that we find it very easy to have sex with our records. 'Cause we always, like, hear the mistakes.

M2: What about some of the psychedelic or drug associations that people impose on it?

RG: Oh, we never have anything to do with drugs.

EF: Huh?... Oh, I guess you can't—you know.

RG: Well, there *is* an interesting competition at the arenas if you can tell which drugs were used on which records.

M2: What do you get if you get it right?

RG: Well, you get all my drugs! [*laughter*] That's what you get. And you get a year's subscription to *Narcotics Anonymous*. A month in the treatment center of your choice.

M2: But your music is so trippy and ecstatic. Is there really no psychedelic influence?

RG: Not completely. I was partly off my nut. I mean I *was* off my nut. A lot. An awful lot. Which is something I have to look at. And having done that, I'll just say... I don't know whether that's a bad thing. I mean, there's things that I've done when I've been off my nut which I don't think I would have thought of otherwise.

It's like the way you said, in the whole history of rock music there's the influence of taking drugs to sort of enhance the listening. It's well documented, a lot of people that took 'em to make it. And then suddenly grew beards. It's part of the whole fuckin' thing.

I was really surprised. And I'm surprised in myself that since cleaning up... the music that we make is just a bit more "heady." You see I was scared... I had a lot of fears I wouldn't be able to make music without drugs. It took me about three months actually to just go and *try* it. And I was really surprised.

M2: Maybe it's even better!

RG: Maybe it's me that's the problem. I got a bad time.

M2: Well, I don't know, I think you're being too hard on yourself.

EF: It wasn't just that. I mean, along with the drugs go all the other things where the communication breaks down. So then we'll have tension. So it's all the consequence of recording with a fuck-up, basically. I mean I'm having my own problems as well.

M2: Poor Baby!

SR: I should think it would be crucifying to think that you could never do music without drugs. That you couldn't write anything that was worthy. Or you couldn't write anything emotional or you couldn't do it without the assistance of substances. I find that really, really worrying.

M2: I think a lot of people get caught in that trap. Even long after it's ceased having any enhancing qualities, and is in fact destroying what they do, they still are under the impression that it's helping.

RG: Yeah, they stop working after a while.

EF: The thing is, music speaks through emotions, and emotions get numbed when you take drugs. So it can only work for so long.

RG: [*Capitol brings us tea*] Got any coffee there?

M2: Well, it's always been my opinion that drugs open these certain areas of the brain that you might not otherwise access. And the lesson you're supposed to get from that...

RG: ... is that it only works for a very short time, and then you keep hitting on them, and then you start to plunge down to the insanity. And, you know...

EF: Exactly.

SR: Totally so right. You can take all drugs once, and that should be just about enough. That's how I feel about Ecstasy. They are brilliant the first few times you take 'em. But then...

RG: You know, I mean, that was my natural state, and I was gonna get fucked up. Great, I just can't do that. I can't do it. I mean, I never *had* been able to

try it only once. Insanity: repeating it, expecting it to be different.

M2: Do you mind my asking what your preferences were?

RG: Well, I'd take anything really. I mean, cocaine was my drug of choice. But I would just take anything after awhile.

M2: Ajax!

RG: Tarantula Venom.

M2: What about other things as drugs. Like technology?

RG: Yep, I done that one.

SR: Well, you can use anything. It can be anything. Comfort, relationships...

M2: Sex.

SR: It's really not necessarily about what it is that you take. It's about why you need to take anything in the first place.

RG: I can loose myself in a computer. I can just zone out completely. I can sit there for fuckin' days.

M2: What kind of computer are you working with?

RG: Well, I've just... I've got a computer at home. Just shut the whole world out. I just fuckin' love my computer.

M2: So you're just wonking away and Liz comes up, puts her hand on your shoulder and says "It's OK, it's only a computer."

RG: Get back to lovemaking. 'Cause I'm in love with this computer. Yeah.

M2: How do you feel about technology? 'Cause obviously you have to use a *lot* of it to get that production sound.

RG: Mmmm, I like it. I mean it's a distraction for me. You know, I used to use all the technology to fulfill my needs as a person. It was like, "I have to get *more stuff*." Until I felt OK. So I went out and got every fuckin' thing there is. All this motherfuckin' houseful of equipment. Things that most probably we didn't need... In fact I was wondering, you know. It's not a very organic way of making music. We don't all sit 'round together and like, you know, *jam*.

M2: So you use a layering method exclusively?

RG: Yeah, well sometimes some of us have to work together on things just to meld. We *do* sort of do it together. We've been doing it together more recently.

M2: Didn't you record this at the Boathouse? I'm a big Pete Townshend fan.

RG: Yeah, he's a neighbor.

M2: So what's the process?

RG: Well, the last half of it we were working together a lot, but the other half actually I was doing the night shift and he was doing the day shift. We would sort of cross each other on the stairs.

M2: [*to Elizabeth*] And then you come in when they've created the bed?

EF: Well, yes. Pretty much at the end. Yeah. I mean I'm hopefully writing lyrics while they're doing music.

RG: Well, you always say that! You never actually have come by yet.

You've said this in interviews for years but you never have actually done it yet.

EF: So what am I doing?

RG: Well, you wait around until the record's just about ready to be released and then you sing on it.

EF: [*under her breath*] Well, that's not the way it is really, but...

RG: 'Cause all of a sudden we're without any sleep and we're sitting in this place with our computer with hands over the keyboard, the Pearlcorder up here waiting for us to say what the song titles are. Talk about leaving us to the last minute, you know. I mean, fuck!

M2: Do you write a lot just on your own?

EF: No, I never write the lyrics until it's time to do a new recording. I only write when I need to. But, I hope to change that. I mean I do have problems. I seem to find it a little bit difficult, still, even at this stage, to, you know, admit to myself that I might actually be quite artistic and even good a writing lyrics and writing generally. And that I might have a natural aptitude for singing. But, you know, it takes a long time, I mean...

M2: Why are you so self-critical?

EF: Well, I think it depends... It very much depends on your upbringing... and the household that you grow up in... your caretakers...

M2: Was there music in your house growing up?

EF: Yeah, sort of. I mean we all liked it, and we all enjoyed music. I mean I grew up with my four sisters and my brother who were all into pop music.

M2: And could any of them play or sing?

RG: No, they steal and mug and rape, heh, heh...

EF: My mother was in a pipe band when she was a young girl. She was a drummer. And my dad played the accordion. Most people took a shit. But I thought he was great, 'cause he was my dad.

M2: Was this in Edinburgh?

EF: We don't come from Edinburgh. We're from this grey town...

RG: [*sotto voce*] Twenty miles away from Edinburgh.

EF: It looks like Elizabeth, New Jersey. That's what it looks like.

M2: Huh?

RG: Oil plants in Edinburgh. Simon went there once. Didn't he?

SR: Horrible. Kept saying "Where's the center of town?"

RG: He was there to shop.

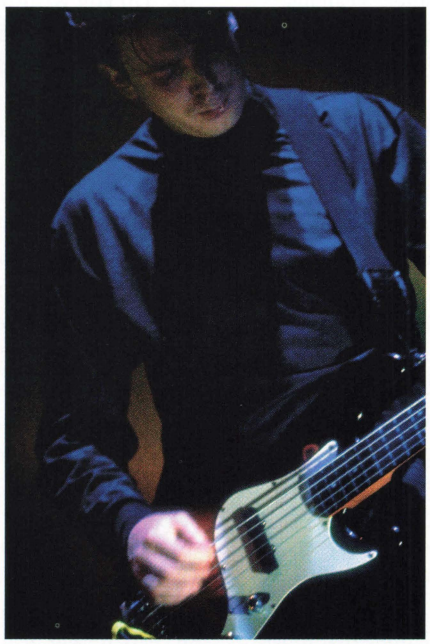
SR: Every single house is the same. Every single street is the same.

M2: And they still talk about World War II to

Simon:

We never ever jam and we don't go into the 12-bar blues

pass the time?
SR: It's like a David Lynch, you know. I mean he'd go wild there.
RG: Yeah, it's a bit like that.
M2: [*to Elizabeth*] So how did you get into singing and doing music? Was it chance?
EF: Chance, kind of. I met up with Robin. Well, eventually I spoke to Robin after going to this club about a year.
RG: You fancied me.
EF: No, I didn't actually. You didn't fancy me either. But you know, after about a year we sort of, we just got pissed. It was like New Year's. You know, New Year's and we just got so drunk that we spoke to each other. And then 'cause he was DJ'ing at this place. And it was, you know, punk rock and all that stuff which we were both into. Robin was playing in a band at the time, but wanted to have his own band. And uh... and Bill and himself—Bill that was in the band originally, the Cocteau Twins—they were just sort of messing about on their own and asked me if I wanted to come along. Which I did. Because I was bored. Wasn't doing anything else.
M2: And you'd had no idea before that you could sing? An inkling, perhaps?
EF: Uh, not really. I mean I had, you know. I told me I had a good voice and things and I did enjoy singing, but not in front of people. I enjoyed singing on my own, just being by myself, doing [*laughter*] housework, cleaning up me room.



M2: What is language to you?
EF: Language? I've got a lot of hang-ups about it because I guess I cheat. I've always cheated and tried to... I don't know. I play these games with myself, I suppose, with words and rhyme. I guess I have hang-ups about maybe not being smart enough—which isn't true. But, you know, it's just another one of these things that I keep telling myself, when I fuck up... See it all ties in with how I cope with life, which is I haven't really felt ready to take responsibility for being...
M2: A spokesman or something...
EF: Well, that's the very *last* thing I profess to do. But let's start at basics—you know, like human beings—growing up; a female; a mother; a mate; someone who's in a band... You know, I still struggle with it but that's been the way I've coped with it. And, you know, to put someone who's not capable of communicating... someone that's in a band and is supposed to sit down and talk about what they've been singing about... You know, on top of music, talk about personal things in an interview situation, and be, um, how do I put it...
SR: Sociable?
EF: Yeah. It's just a tall order, I think.
M2: Is that why you liked to play around with words and sounds? To obscure meaning?
EF: Yeah, but I really didn't know that at the time.
M2: Do you think you're deliberately obscuring content?
EF: Yeah. I do. But that's OK. It's fine.
M2: Sure.
RG: It's just a way of keeping people at length. I mean, I can identify with that because I've got so little fuckin' faith in myself as a musician. The reason that I could've gotten so excited makin' music the fuckin' way I did was just to cover up the fact that I wasn't actually playing very well a 'tall. Actually you just take away all our effects pedals and you've got something that's really fuckin' crap.
M2: [*noises of demurral*]
RG: And I dunno, I mean... that's why with this record, I didn't consciously go overboard with the production. Didn't really build the songs on all the layers and layers of overdubs like *Blue Bell Knoll* or something that's just *massive*.
M2: Yeah, right.
RG: This time it's just kind of like *us*. Stripped it back down a little bit, basically to songs and stuff like that. The musicianship I'm still not quite happy about. It's just like I let it, just let it *breathe* a little.

I found that I can, fuckin' really sort of unhappily make things claustrophobic with the production. Too dense. And it's just like "Yeah, but there's no fuckin' song in there, really." So we just try to experiment. I know that I can fuckin' do it.
M2: Yeah.
SR: I expect people who write "normal" lyrics don't get investigated so deeply. But because you maybe hear one word here or there, it's intriguing. Everything about our work... the sleeves have always been very vague and very—sort of, no specific images...
M2: No one stands in a field of wheat...
SR: We don't give any information out on the sleeves.
M2: You preserve the enigma...
SR: We very rarely ever do anything on television. We've like done one live radio interview. *Ever*, over

here! We're not exactly the most visible and communicative group.
M2: Even when you're communicating.
RG: You know, I think when... I don't know, I mean, if I actually have found out a band or something I don't know anything about... and I have to actually go out to the record store and sift through the records and then I come up with a band and I'm actually listening to the music, and I'm not hearing what it is. So I've got to use my imagination a little bit. "Oh, I love that band, I *love* them." You know what I mean? I really, really... because it becomes a very personal thing.
M2: So then how do you feel about videos? I mean, I've always felt that videos just totally *rob* music of that exact quality. You can't create your own internal movies.
RG: That's exactly what I think about 'em. What we've done with videos, recently, is try to take out all the storyboarding. Just try to show us through some film technique. I would like to try some more things but I've got a lot of fears around that. I mean, just handing your whole fuckin' work over to somebody else that you don't know and trusting them to fuckin' come up with something representative.
M2: Are you a film buff?
SR: Yeah.
M2: How about doing soundtracks? Is that something that you've been approached for? Or even *want* to do?
SR: Supposedly. Not much.
M2: Really?
RG: Well, we've done some music for film.
M2: Porno films, right!?
SR: Not really. We got a song in *Mad Dog and Glory*. Ever see that? Bill Murray?
M2: And Uma Thurmond, Robert DeNiro.
RG: I think that there's a huge difference between having a song in a movie and actually doing a soundtrack.
M2: Would you like us to tell our readership—I mean those of our readers that may be film directors—that the Cocteau Twins are open to doing a soundtrack?
SR: If Scorsese reads your magazine, yeah.
RG: Well, soundtracks... something may happen, something may not. It would be nice.
M2: What about some more about language. You said that you play around with words and make up your own.
EF: Yeah, I mean I can. The catch is I can barely talk English, isn't it? I quite like that. Combining words in different languages that I couldn't understand just meant I could concentrate on the sound and not get caught up in the meaning. And that was, you know...
RG: I think you still do that...
EF: I've not finished what I was saying, Robin.
RG: Oh, we *are* getting sensitive, aren't we?
EF: But I got to have more fun because I was able to make up lots of portmanteaus, literally hundreds and hundreds of words. I was really into it... And so it just kept on getting bigger. It's wonderful.
M2: Is it a little dictionary?
EF: Well, that's how I got some of the words. And then I got to the stage where, I don't know, something just came in.

My life was a fucking mess. It was a bottle-of-dirt punk rocker. One said! And I just couldn't carry on. I mean, it would have been so easy to do that. 'Cause after *Blue Bell Knoll*, which was really the easiest, the easiest I've ever done to make a record... I just couldn't keep going that way. I guess that was the start of learning to be aware of what was going on and what I was responsible for.
M2: Transcendent noises?
EF: I didn't know that. I didn't know that at the time. I'm just beginning to be aware of what's happening through the work.
M2: What were some of your portmanteaus?
EF: No, I don't want to say...
M2: Oh, those are Jas.'s favorite words. You don't know how happy he is that you said that!
EF: [*much laughter*]
M2: Well I'll trade you. Alertia: The tendency of the mind to remain in focus until acted upon by a more fascinating stimulus.
[*laughter all around*]
EF: See, I find that mine don't have any meanings. They're not proper. Although I've got a great dictionary of them. It's like the Cockney rhyming slang or something. Writers like John Lennon. Writers that just kind of made up their own portmanteaus that caught on and people still use them.

They don't mean anything, though, that's the thing. You know all the transcendent sounds. It's all sound all the way through.
M2: Have you ever read James Joyce?
EF: No, I haven't really been interested, but I'm sure in time that I will be.
M2: It's just like funny how seventeen volumes will come out and explain what it really means. When you put these together do they hinge around a vowel sound?
EF: Yeah, generally. Things that weren't easy for me to sing. Like "ee." When I'm singing out loud and I sing "ee," my throat closes and it's really difficult to me. 'Cause it's an extension of your speaking voice. I love S's!
M2: Sibilance. Sssssss...
EF: Right.
RG: Like, can we do that line again and take all the S's out? Please?
M2: Those are the two worst!
EF: Well, they're very dramatic in the headphone, yes. Great.
M2: Do you find that it's the vowel sounds that trigger the emotional content?
EF: Um, yeah, because it sounds very dramatic. It *does* sound very dramatic...
M2: The wailers... the professional mourners of ancient Greece that trailed behind the processions. There was a particular style of wailing that they did to make the mourners feel increased grief.
RG: It's just like Country & Western. Yeah.
EF: I think I said all the same things before that I did on *Four-Calendar Café*. I just didn't know I was because I still hadn't learned what was interesting—how many emotions there are or how many I might be feeling at any one time. Which I wasn't able to do before. Which is definitely on *Four-Calendar Café*. And some of it was very painful. I know it started making me feel very angry... or sad... or grieving. Which aren't the most comfortable feelings to have. But I enjoyed doing that because it's a very courageous thing to do and

it's very good for me. And, I mean, I'm going to get... I was willing. I was willing to do that. And I had fucking problems when I used to do that... And I got so much more out of it.

M2: Well, with vowel sounds, do you find that certain ones have a particular emotional content?

EF: Never, I've never noticed. I've never noticed.

RG: This is actually a heady conversation...

EF: Certain things have occurred to me. But, I mean, I'm in my head enough as it is without really...

M2: What you were saying reminded me of some of the Dadaist approaches to language poetry where they went on in that vein. And they were very insistent that there were no corresponding meanings—that it was just purely sound. And they said it was a code for something else and it wasn't.

EF: Well, we're not doing it to...

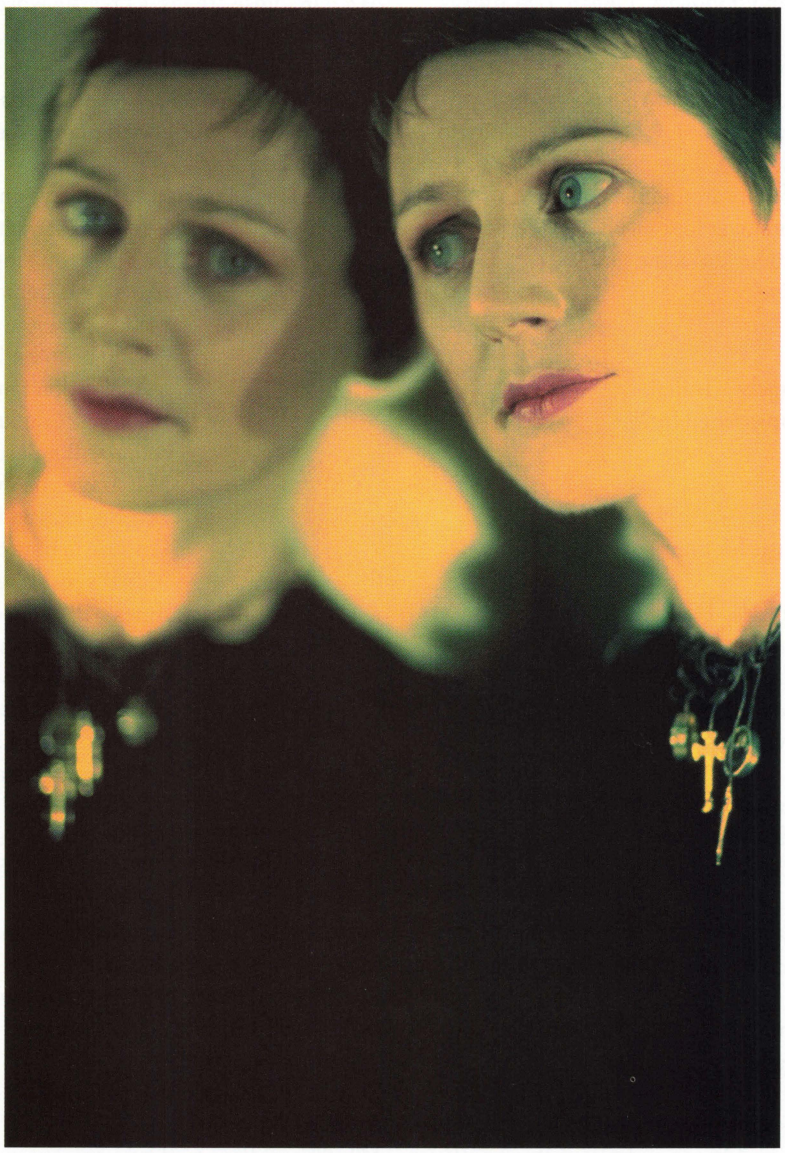
SR: You can't please anyone. You've got to please yourselves. It's very selfish. Liz didn't write all that stuff for me. She wrote it for herself 'cause she needed to do it. The after effect is what I'm not sure about—catharsis and gettin' it all out there. I'm not sure that's the motive of the music.

M2: What about playing live?

RG: It's different. It's a whole different sort of... I don't know. My philosophy for playing live is I don't really consider myself as a natural performer. I feel that the stage is not really my ideal kind of place.

SR: Standing there like a bit of wood... [*laughter*]

RG: Yeah—I was just going to say that we put together a live thing after the fact. It's not the way most bands do. They jam together, then they record their performance...



We're basically using more musicians than we ever did.

M2: So how did you find the other musicians that you're working with on this tour? Is it just an audition process?

SR: The guitarist we've had like for a few years now. We did that through auditions. Or I did that through auditions!

M2: What do you look for in a musical/creative person?

RG: Somebody who you can spend time with. Fuck their talent. Fuck their ability. We've got to spend an awful lot of time with them.

SR: A bit of both. I mean I've met some pretty nice people and had them along to the studios to play along with the tracks who really couldn't play. So initially the personality, and then if they can play and understand what the hell we were on about. It really isn't the most difficult music to play. But a lot of guitarists, they don't really have the sort of concepts of "caressing something." It's more like ARRR/ARRR/ARRR!

RG: A lot of people play too well, actually. Too much virtuoso technique and not enough feeling. They're the ones who do the jamming.

SR: As soon as we go out of the room. We *never ever* jam and we don't ever like go into the 12-bar blues. Even when we're rehearsing we just play our songs and if we're not playing our songs, then we go home. And I know there's Stones and the Slits going down after we're gone.

M2: "Momma told me, when I was born...!"

SR: "Stairway to Heaven"! You just dread that somebody's walking past the room and they see the board "Cocteau Twins."

M2: Do you miss having the vocal harmonies and have you ever tried to work with a backing singer or with a machine that can reproduce those?

EF: I've thought of it, you know. And I don't like to do that. I've never really been interested in having backing vocals before. I'd rather do it myself. And I want to sing songs that I haven't sang for God knows how long. Old songs which I do feel, I do have to, you know they're my Hamburger Hills, you know I've really got to get over those psychological humps around those old songs. I'm trying to change my voice at the moment and it's so hard to sing those old songs... I mean, it's hard to sing them again without falling into my old habits.

M2: Well, we won't ask what those were! What do you try to do with your voice now?

EF: Just use it properly. Not hurt myself. Just take care of myself. And, umm...

M2: Are you studying or coaching with anyone?

EF: Well, I went to see someone this time 'cause I really got in trouble on this album. I was just freaking out all over the place. I stopped making a lot of sounds, you know. I was talking very quietly. I was just so afraid of getting loud again. 'Cause I'm not really very loud on *Four-Calendar Café*. I just feel like I've

lost touch with that side of me and I wanted to get back in touch with it so that I can have my quiet moods and I can have my moments when I can express myself in a very loud way as well. 'Cause that's good for other emotions.

M2: Yeah, I know exactly what you're talking about. I'm always going back and forth with the same thing with my voice. It's like, I'm supposed to be really careful, and never get hoarse, then fuck it, I want to scream. And then "Oh, shit! I've done damage!"

EF: That's how it happens to me, when I was starting to get the singing out. You can't really do that. I mean I don't want to do that anyway.

SR: That's how you got sent to bed.

EF: I need knowledge, I need information. I just need to know my way around my body. And she can help me and she can tell me what I need to know.

M2: Does she use a particular technique?

EF: No she's just a... Although she can do various things. But, I'll go elsewhere too. I'm going to go in a healing voice thing in a couple week's time which I'm really looking forward to.

M2: What's that?

EF: Ah, I'm not sure yet. She's like a Mongolian chantress...

SR: Jill?

EF: Jill Purce.

M2: Oh, she does the Tuva throat singing. Rupert's wife. Do you have to go away somewhere to do that?

EF: No, it's just like a day, it's just like a workshop, where there's six people doing an hour long... thingumybob.

M2: What is the appeal to you of work like this?

EF: Oh, I'm still not sure that there is an appeal yet. I might go and think, you know, "This is not for me." But it might be. It's just an opportunity to shout.

M2: Primal Scream therapy?

EF: I like that John Lennon album, really. [*Plastic Ono Band*]

M2: Yeah, he got really into that for a while.

EF: But it doesn't sound primal. He was just sounding pissed, you know. He was singing about things he was pissed about.

M2: How have things changed for you in respect to the record company? Now that Capitol is involved?

SR: Well there's a dirty personnel change at Capitol.

RG: Censored!

M2: 4AD/Capitol?

SR: Yeah, we left 4AD in 1990.

M2: Amicably?

RG: Ummm...

EF: Not really.

SR: Not really. No, but I mean it's OK, you know. Though it was pretty awful the last year there. Well, the last few years there.

M2: You were there for a long time.

RG: Yeah.

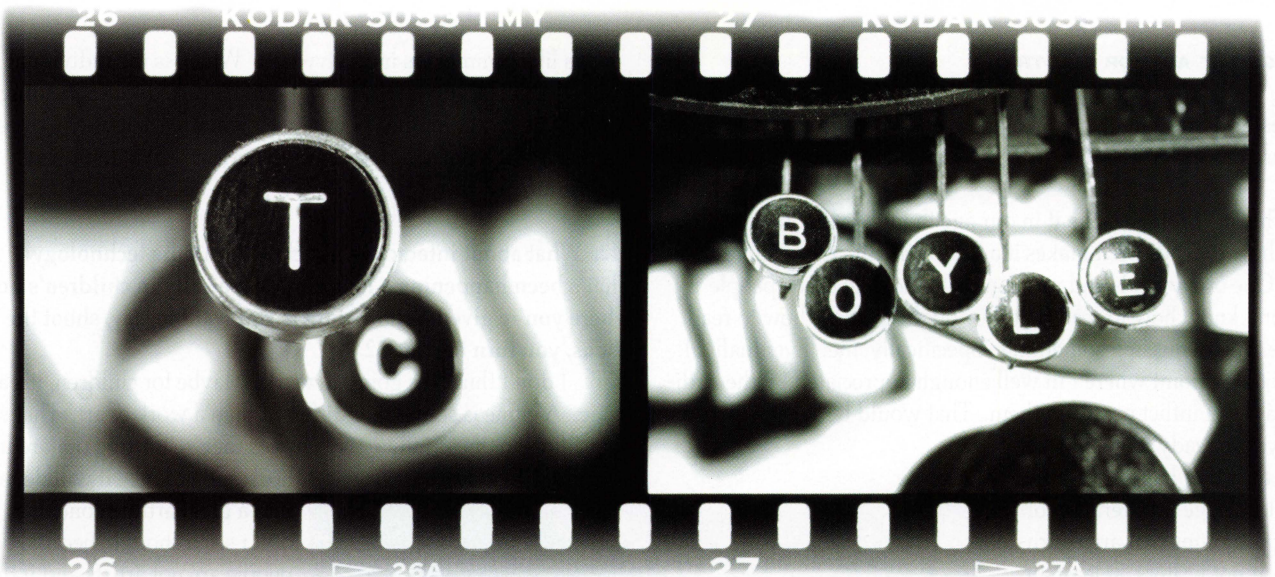
SR: It was one of those relationships that just sort of died a death, really. Nobody's fault, it just happened.

RG: What do you mean? It was *their* fault! [*laughter*]

SR: Would you like to go on record as saying that?

RG: [*muffled sounds*] M2

Heide Foley



David Kushner drops in on T. Coraghessan Boyle

I've read the future of rock and roll and his name is T. Coraghessan Boyle. The only author to win the PEN/Faulkner award and *open for Patti Smith, this pop shaman of the absurd might just be literature's last hope. Fast, funny, dark, and furious, he's the kind of guy who'd drop a stink bomb at his own funeral, an intrepid prankster slitting the big pompous veins in history's wrist.*

Now, 15 years since his first publication, Boyle's blood is running gold. Veteran director Alan Parker will begin filming Boyle's turn-of-the-century novel, The Road to Wellville, *this fall. The story explores the Battle Creek Sanitarium: run by cornflakes inventor Dr. John Harvey Kellogg, a health fascist who prescribed sexual abstinence and five enemas per day to trainloads of international élite and was ignored to the best of his ability by his black sheep son, George Kellogg.* Wellville *is quintessential Boyle, an effluvious tour of human fallacies, greed, fanaticism, and the sad quest for immortality.*

Of course, it's all familiar romping ground for this 44 year old ferret enthusiast and father of three who concedes he was once just a "maniacal, crazy driver and a punk." Covering everything from pot farmers to African explorers, Japanese seamen to Hudson Valley greasers, human flies to Elvis impersonators, Boyle remains voraciously ambidextrous, bizarre one page, tragic the next. He's currently working on The Tortilla Curtain, *a contemporary novel about the class wars on the Mexican/American border. More stories,* Without a Hero, *will be published by Penguin this fall.*

We met the morning of what proved to be his largest and sweatiest reading—6000 New Yorkers, outside in Central Park, in July. Decked out like a Gap ad (backwards baseball cap, blue Lennon shades, the erstwhile goatee), Boyle snickered like any other Peekskill hipster torn between inheriting the world or just blowing the whole thing to bits.

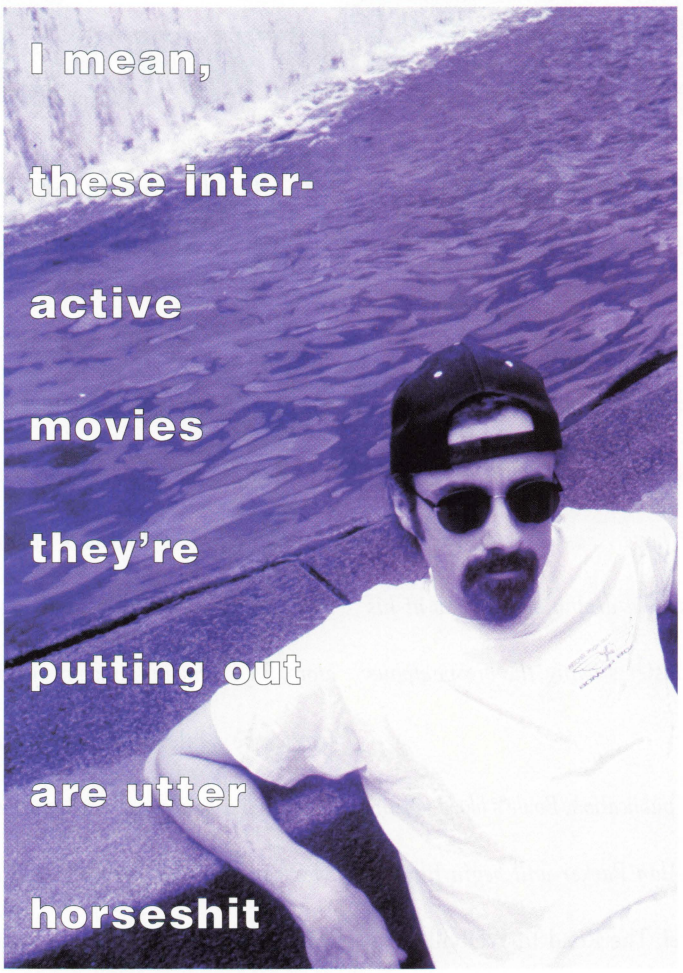
Photographs by Jill Greenberg

HE SINGS THE AUTHOR ELECTRIC

M2: Lester Bangs, the late gonzo critic, and you share a belief that literature can have the same vitality as rock and roll.

TCB: The one problem with it in our age though is that no one knows how to read. So it makes it a little difficult. But it should and could. One of my goals and missions is to indicate to the people who don't know how to read that they ought to know how to read, because they're missing something. Specifically, me! Eventually, I will get to the point where I'm well enough appreciated by the audience that I can inflict music on them. That would be a lot more fun. The boys are ready to go, too.

On the other hand, though, there's this huge proliferation of writing programs that are churning out, if not writers, at least an audience. And these are people who are very sophisticated and will hopefully be the tastemasters of the future and turn people on to things.



M2: Given the acceleration of information technologies and the potential of CD-ROM, can science help save literature?

TCB: Why not? My most recent novel's available on disc. It just seems that the real novel is easier to take with you in your backpack and read on the airplane. It's funny though, [*laughs*] for a certain kind of person, "If it's on a screen, I can relate to it." That's all right.

M2: How do you feel about the possibility of someone reading *The Road to Wellville* on CD-ROM, getting to a passage about enemas, and clicking on a lurid educational film for more information?

TCB: It's a mistake, a big mistake. You know why? Because a work of art, despite what the French critics might say, has to have an organizing principle behind it. A genius, a person, is responsible for it and if you break the spell of it in any way, it ruins it. To read is the same thing as to write. You know how you're in another world when you're reading, when you're really concentrating, when you're focusing? That's what it's for. So if you're constantly bringing yourself out of that world to access something about enemas, it might be informative, it might be the way a student might study enemas, but it doesn't give you what a novel is supposed to give you which is to live in another world, make it, invent it, see it in your head!

It's like filmmakers in Hollywood. Where is the individual vision? It gets lost because they test, like, three different endings. And whatever the shitheads in the audience feel should be the ending, well, that's the ending. That's generic art. We don't want generic art.

M2: What about interactive novels without the technology? That's been happening a long time, especially in children's novels where you're given a choice and if you want to, say, shoot the aliens, you turn to page 32.

TCB: I don't think it's going to work. Maybe for children, it's a game. A game is something different than a work of art. That's okay. I mean, these interactive movies they're putting out are utter horseshit. Maybe it will develop into a great artform one day. I don't see it though, because some people are not artists and if they have control of the button, they're going to screw it up. [*laughs*] It's like making art without the tools, the preparation, or the education for it. There's a reason why an artist becomes great. It's an innate talent, yeah, but it's also a development of it and maturation and so on and so on.

M2: But, isn't the reading process just as participatory? When someone reads a story, it's a very strange experience, looking at some very abstract symbols on a page, translating them into characters, scenes, dialogue. You're depending on the reader to be a skilled performer.

TCB: Sure. But, my objection is to fiddling with the text. You're playing a game. You lose the impact of the original, whether it's good or bad. If it's bad, you throw it away. If it's good, it holds you in its spell.

JUST THEN, A THOUSAND YEARS AGO IN NEPAL...

M2: You do a lot of time travelling in your fiction. Are you using fiction as a kind of historical document?

TCB: I'm not like a James Michener or a traditional historical novelist who's interested in replicating history. If I were, I'd be an historian. I'm interested in exploring something as a springboard to the imagination and some subject. We don't have religion; we've replaced it with science. And science is voodoo, too, because we know how if we drop the vase, it's going to fall to the floor, instead of go up. We still don't know why. We still have no idea where it's come from, where it's going, what we're doing, why we have

consciousness, etc. History is, for me, a kind of a reminder, a connection. So, to me, history is one way of holding on to some kind of connection as a species. It also gives me a setting for the imagination.

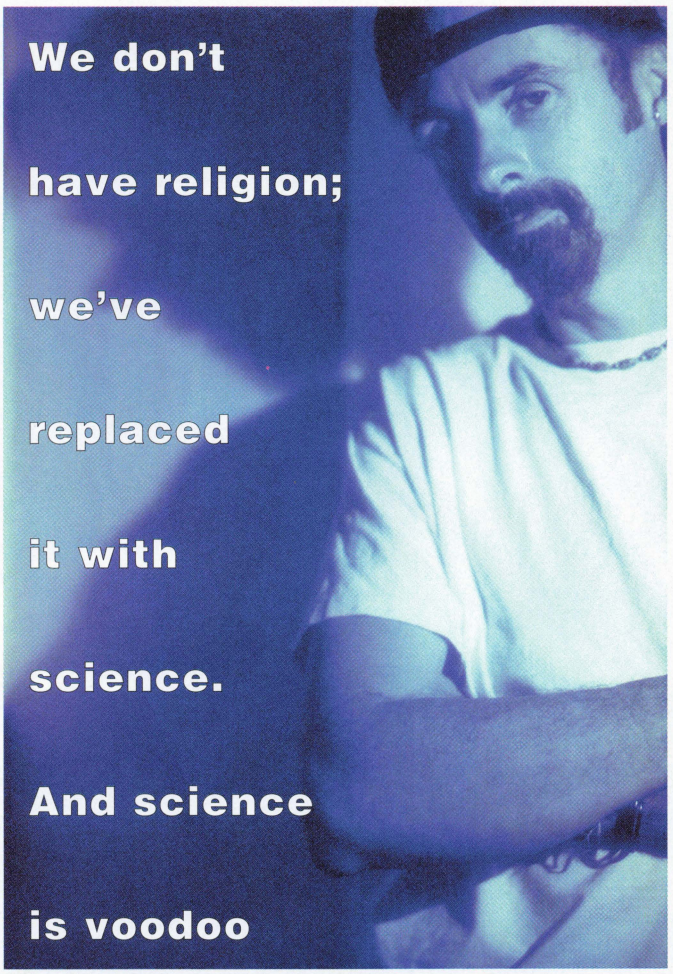
I suppose in a way it's like how a science fiction writer might dream about the future. It's a place. It's a thing.

M2: If you could go back and inhabit some other period, what would it be?

TCB: Wow. I'd like to inhabit the 50's as a five year old kid, 'cause that's what I was. Wow. I'll bet it would have been great to live in Manhattan in 1920 or to live in L.A. in 1920. Before everybody else got there! L.A. when W.C. Fields was there, what a gas that must have been.

M2: Would you like to dream about the future for a new novel?

TCB: It would be a challenge and interesting for me. A book that is future fiction that I love, that I think is one of the best five novels published in the last twenty years, is *Fiscadero* by Dennis Johnson. It blows me away, because it's the recreation of a culture. It imagines how culture begins and what it is. I love the fact that Bob Marley has become a God. Truly! Because the historical connection is severed. That sort of thing I love.



ELVIS DIED FOR SOMEBODY'S SINS, BUT NOT MINE

M2: Let's say an atomic bomb goes off. And all that's left is memorabilia of the Grateful Dead and Elvis Presley. A new people evolves. Which God prevails, Jerry or Elvis?

TCB: [*laughs*] Elvis would always prevail, because he's become a religious icon. It doesn't matter who he was or what he did. He's become like Jesus Christ. He's just an icon.

M2: Jesus was someone else's Elvis.

TCB: [*laughs*] That's a good possibility! Yeah, well, he was. He was a person who had a powerful and magnetic influence on a group of people and the group expanded infinitely. But Elvis, to me, was just a fat old guy in a suit in Las Vegas. I don't get it. Plus, I basically hate his music. It's just crappy country music. Individual songs, like "Jailhouse Rock"—there's a couple of good ones that I covered with my band. But, basically, he just doesn't move me much. [*laughs*]

FAME FAME FAME FAME FAME FAME FAME FAME FAME

M2: Like in *The Human Fly*, where this guy straps himself to airplanes to... I don't need to tell you, you wrote it.

TCB: I admit it! That story illustrates that if you only seek fame, but don't have any credentials and don't produce any works of art, it's bankrupt. You see, Dave, you're a reasonable man, but a lot of people just interviewed the guy who had the biggest pig at the county fair. Now they're interviewing me, tomorrow they'll interview the fire chief. They don't know from shit about anything and most of them have never read my books. They just see me as some arrogant shithead who makes wisecracks and jokes they don't get.

M2: Well, they're not your audience anyway.

TCB: But they kind of disturb things. I like fame to the degree that I have people reading my books. I'm excited by that. I never would disdain the audience like some writers and musicians who don't want to touch the unwashed. I love the audience; you came to see me, I'll stay there, shake your hand, sign your book. It's great. Maybe I'm not going to invite you home to live with me, but I love you. You love me, I love you. So my idea in doing all of this is to get the word out. That's my interest. Because I think what I'm doing is valuable and good and better than a lot of the stuff that people are reading. And I want my little spot in there, and fame goes hand in hand with that. There's levels of fame. The first level is nobody knows who you are and nobody cares. The second level, which I've modestly attained now, is sometimes people see you on the street and they say, "hey, man, I love your work!" You say, "thanks," and they go away. The third level is they see you on the street and they say, "you sunuvabitch!" [*throws a punch*] Pow! The fourth level: J.D. Salinger, the concrete bunker, that's over, that's the end of it.

Right now, I'm happy being at the second level and I hope I stay there. [*laughs*]

MEANWHILE, 20 SECONDS INTO THE FUTURE...

M2: What *do* you think of cyberpunk fiction?

TCB: I have to admit that I have never read any genre literature. It doesn't interest me because, for the most part, genre literature sacrifices what I find to be great in writing for one element that becomes

primary, and that is the movement of the story. In my fiction, in my aesthetic, the movement of the story is primary, yes, but I think it's integral with all the other things you're trying to do. You use symbols, you use beautiful language, you use rhythm, you make great metaphors, have a message, have levels of meaning, etc, etc. Genre literature doesn't do enough for me.

I'm perfectly happy to smoke a joint and watch a stupid Japanese horror movie on TV for an hour; that's okay, that's one thing. I love to go and see a science fiction movie. But, as far as reading a book that I don't think is great literature, I don't have time for it. If I pick up something and I don't like it, well, then, I'll toss aside. I don't feel compelled to finish it.

Disappoints you, doesn't it? [*laughs*]

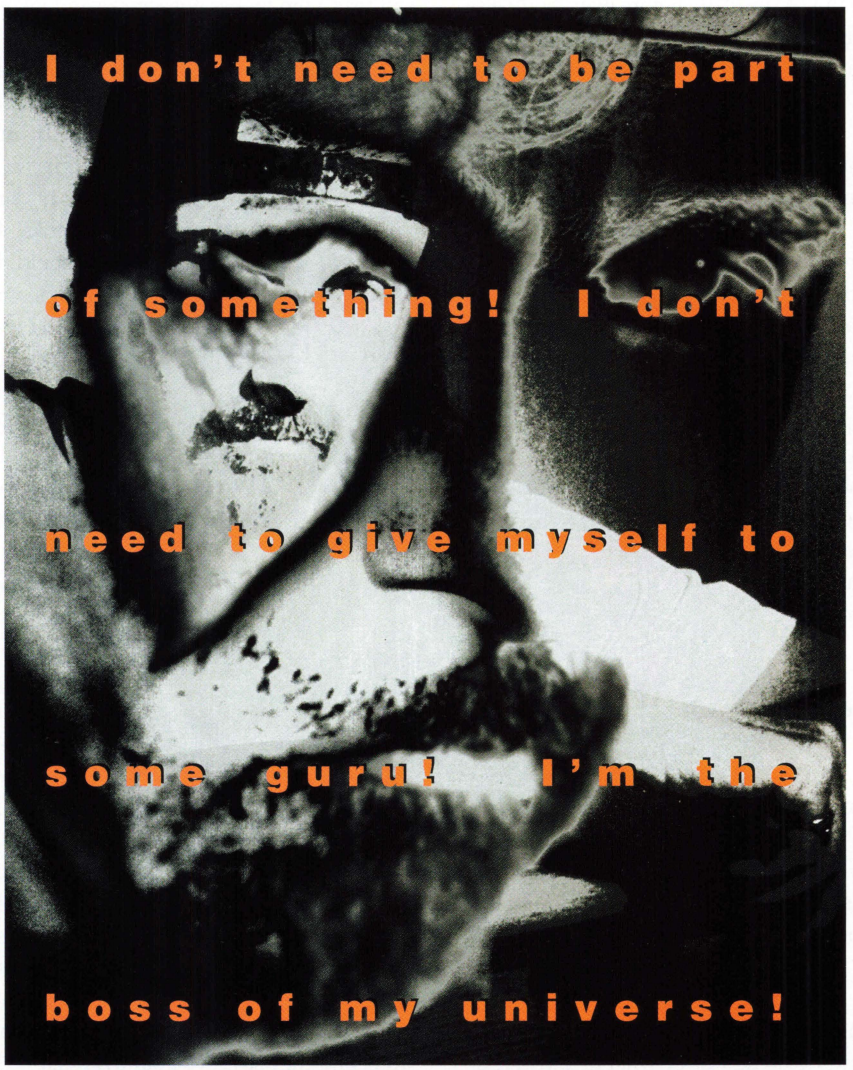
M2: Well, maybe William Gibson.

TCB: [*laughs*] You were hoping I was going to tell you of my great love for *Neuromancer* and the whole business. I guess it's just too alien to what I'm trying to do and, in my mind quite frankly, not nearly as good, and not nearly as good as the writers I admire.

M2: Why don't you think there's more bizarre and versatile writing going on?

TCB: I think it's what your personality accords with. I'm sure there are people just picking up their guitars, learning how to play right now and some of them are going to be folk musicians and some are going to be neo-punk musicians and some are going to be retrograde musicians like Eddie Vedder of Pearl Jam. It's just what you dig. You asked me earlier, what if I were to stand up tonight and do some songs? They would be blues songs. That's just what I like. So this is the kind of literature that is uniquely appealing to me. That's all.

And why? I love poking holes in pomposity and the established order and the way things are supposed to be, as in *The Road to Wellville*, where a guy like Dr. Kellogg tells you how to live your life, tells you to give up your individuality to him, and so on. I love to just make fun of that. I love, in regular conversations, to say unusual things for fun [*laughs*]. Let's just lighten up a little bit, you know?



ROTARY-OPERATED INNER SELF MODULATION

M2: Dr. Kellogg had his sanatorium. Richard Simmons has Dial-a-Meal. Why is America so enraptured by pop healers?

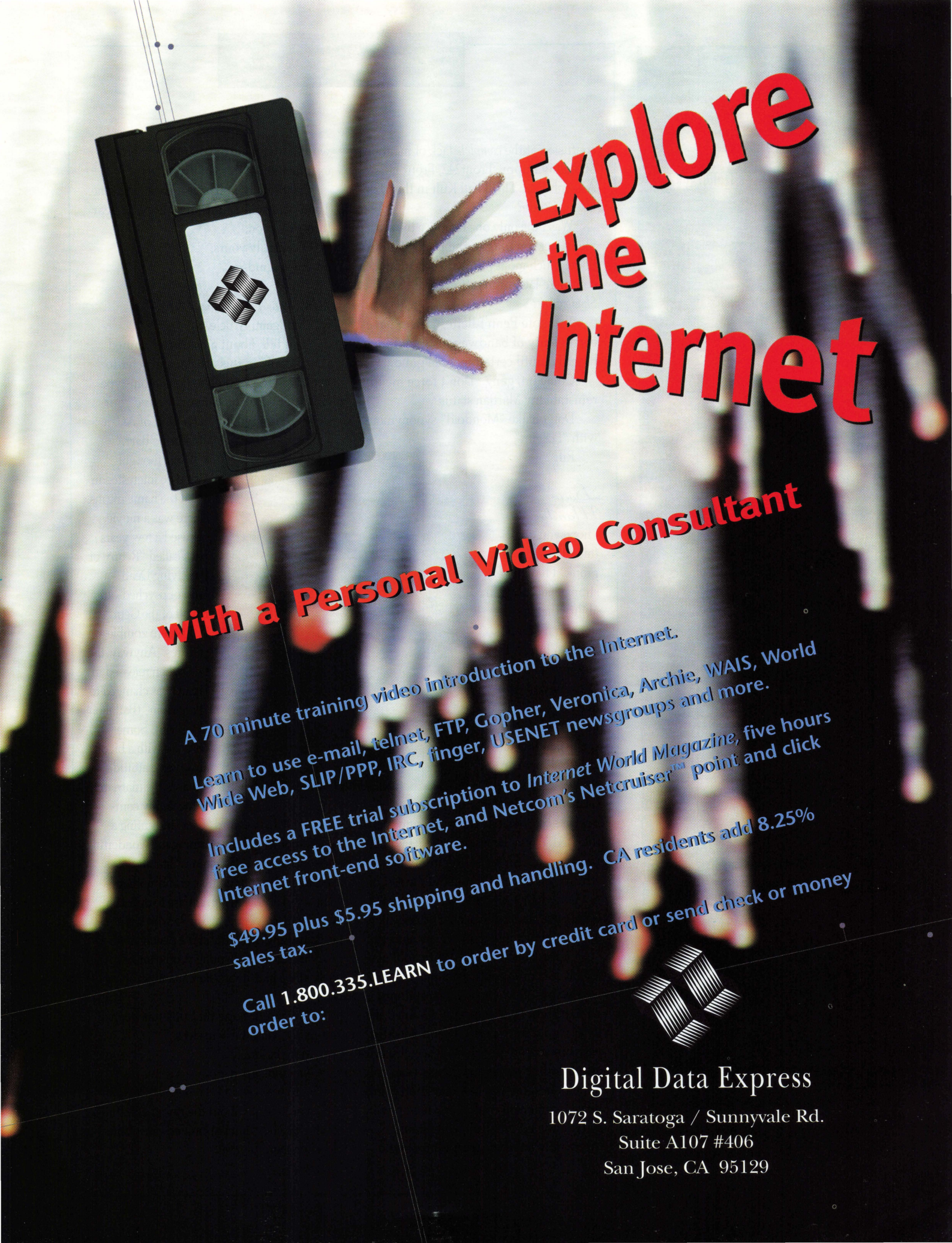
TCB: The whole hucksterism of *Wellville* has a tradition in Mark Twain, in Melville's *The Confidence Man*. It is very American. I guess because of the whole forty-niner thing, you go out there and you make your fortune. I don't know if Americans are uniquely susceptible to these things, I suspect everyone in the world is. You have your *curanderos* in Mexico, doing their witchcraft and all that shit. Everybody's susceptible to things like that.

People just don't have anything to hang on to. Life is confusing. We talked about the information overload we have. You can't really know anything, there's too much. People lose their way and they need some kind of guru or Führer or boss or political leader or whatever to tell them what to do. I stand in opposition to that, because, from my generation on in America, we've been raised to be punks, to kowtow to no one. No one's ever told me what to do in any way and I'm glad. So I relate to George Kellogg.

I don't need to be part of something! I don't need to give myself to some guru! I'm the boss of my universe! For better or worse, I stand on my own. In my circle, I'm the guy who wrote the novel! If there's going to be a movement, I'm going to be the leader! All the bands I've been in, I chose the songs! I don't want to collaborate with anybody! I don't want to be part of anything! I'm very suspicious of that, and that in myself too. There's a little Dr. Kellogg in me, just as there's George Kellogg in me.

M2: There's no dead guru you'd like to conjure if you had a Ouija board?

TCB: Well, I don't have to because the single person I'd most want to communicate with is Jimi Hendrix and, of course, *he* still puts out three albums a year. M2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confusion at the *complete* lack of mention of Skinny Puppy, Front242, Front Line Assembly, or Thrill Kill Kult in the M2k Users' Guide?

Was I the only one to notice the *obvious* Steve Jackson plug in the Users' Guide (How much money did you get?) and the complete lack of mention for FASA's *Shadowrun*?

To quote Penn Jillette, "There have been plenty of bandwagons I've ridden happily, until certain people got on."

Come on, gang. Don't force me to reinstate my Martian status.

Don't make "Mondoid" synonymous with "Poseur."

Riff

Robert Karpa

Dear Mondo:

I hope you don't think this letter is a prank. I have a very strange neurological ability that is so unnatural I cannot seem to interest anyone in an examination or diagnosis. This is not a "psychic" spoon bending talent either. I have an ability to voluntarily dilate the pupils of my eyes by "flexing" my brain (and that's the ONLY way I can describe it) which produces a rush sensation in my head which then travels throughout the rest of my body like a kind of current. WAIT! Before you discard this letter please allow me the opportunity to prove my sincerity.

I approached the UCLA School of Medicine neuro-people about this and they handed me off to a hospital receptionist who thought I was epileptic. Granted this letter would seem perfectly at home filed with others from people with secret service agents hiding out in their head. I can only hope that in the interest of a good blurb for your zine you could hook me up with a credentialed medical professional (preferably not their receptionist) who would extend me the dignity of a proper examination of this ability.

Incidentally, you have a great magazine. Thanks for your time and I hope to hear from you soon.

Very truly yours,
Steve Lindsey

Attention Chris Hudak!

RE: Mangajin Article.

You talk about a character named "Obatarian" in this article, and refer to her as "a large and obnoxious mom-type character who you cannot, to save your soul, see as anything but a kind of Asian Roseanne Barr."

Just thought you'd be interested in what the name means. There was a movie released a few years back called "Return of the Living Dead," a kind of psyched-out rip off of the George A. Romero zombie pictures. Anyway, the title, when released in Japan, was changed to "Battarrian" (Battalion in Japlish). Some wise-ass with a bit of an adverse attitude towards the matriarch of the family combined it with the word "Oba" indicating a grandmother or aunt, forming the wonderful new slang word "Obatarian," literally meaning "hideous zombie grandmother." The word is now in current use to describe any woman over the age of 35 who has a domineering mentality and a penchant for making the lives of young people into a living hell, kinda like the assistant manager at my company.

I sincerely hope that this has been amusing, yet utterly useless.

Marc Fujimoto,
Nagano, Japan.

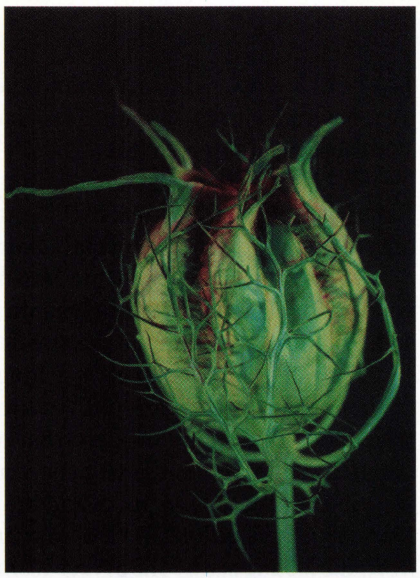
PS. You're right about the rascal greetings stuff. The boss almost canned one of the teachers here for that!

Dear Mondo 2000,

My name is Frankie Bit. I'm an Italian (post)rave DJ & record producer, and I define myself as a multimedia [freelance] producer, or simply... an active TECHNO OTAKU.

I write for different underground techno-magazines: Neural. Tunnel. Codici Immaginari....

I also produce a satellite radio show on the European satellite Astra 1a. This show is on the new edge: a sinthesis of music and newculture. Your mag is really in the Ultraworld, ohh it's grEat. With the 11th issue of Mondo, It came as a big light, and I understood that the new edge is not a straight line, instead it's a curve line.



Steven Brown

Some guys in Rome have found a good way to create a real free TV station. They broadcast on the satellite frequencies, with transmitters based on montains. In this way they are outside the italian laws, without being illegal. They are considered a Club, not a TV, and so they can broadcast whatever they wanna (Now they're broadcasting porno movies between 10 pm and 4 am).

The initial budget is low, in fact they have spent $300,000 for the first year for everything they needed (films and structures), and they have recovered all their money with just 1000 (1 thousand) subscribers [the fee is $0.75 a day, and the TV decoder/receiver costs $200].

I hope that You like my "Madonna Evolution" and publish it. This foto is quite trippin, so if You are interested I can send different, normal. versions of the picture.

The other fotos are: "Techno Otako Room" and my $500.complete.music.workstation.

I would write on your mag an article on How to make real.Techno tracks with just a few bucks.

I've yet published some records made with just an Amiga 500, and they sound better than the usual dance records (not for the music quality, but for the feeling).

I use the Amiga 'cause is the only computer that has a real good sound chip (I love you Paula) built inside, and You can make a good sampler with a really cheap kit, or simple buy a mounted one with just $50. The PCs aren't good 'cause their *good quality* smplers are expansive, and the actual PC's programs aren't good for making real.techno. The Amiga sound chip can mix the 4 sound channels in an incredible way.

The the control of the samples I use the programs designed for being a simple drumbox, they are simpler than the Q-Base like, and You don't need an outsider sampler (Akai is really a bluff).

And if you add a 909 and 303 you have the perfect techno machine. Last year, with this configuration, I've created a non.techno tune that has been played by the main italian fm.Radio network.

If you wanna publish the article, don't care for my strange English 'cause I'll write it with the help of my English girlfriend.

Are you interested in Take me as your correspondent in Rome/Europe? pleeease!

Is it possible to make a short fax or telephone interview with... Timothy Leary? Oh it's my dream since I was eleven!!

I hope to haven't bored you with my letter and remember that we are all dancing on the same Edge.

Sincerely,
Frankie Bit
TECHNOlogikNATION

"Technology is life...in evolution"

—frank bit

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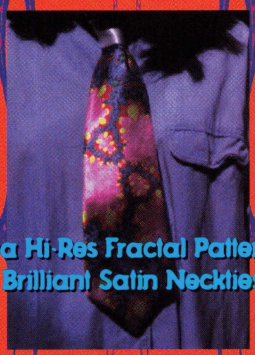

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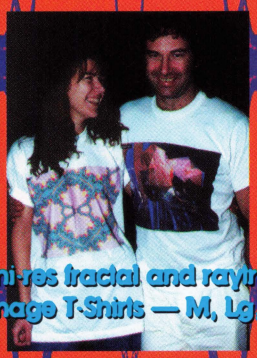

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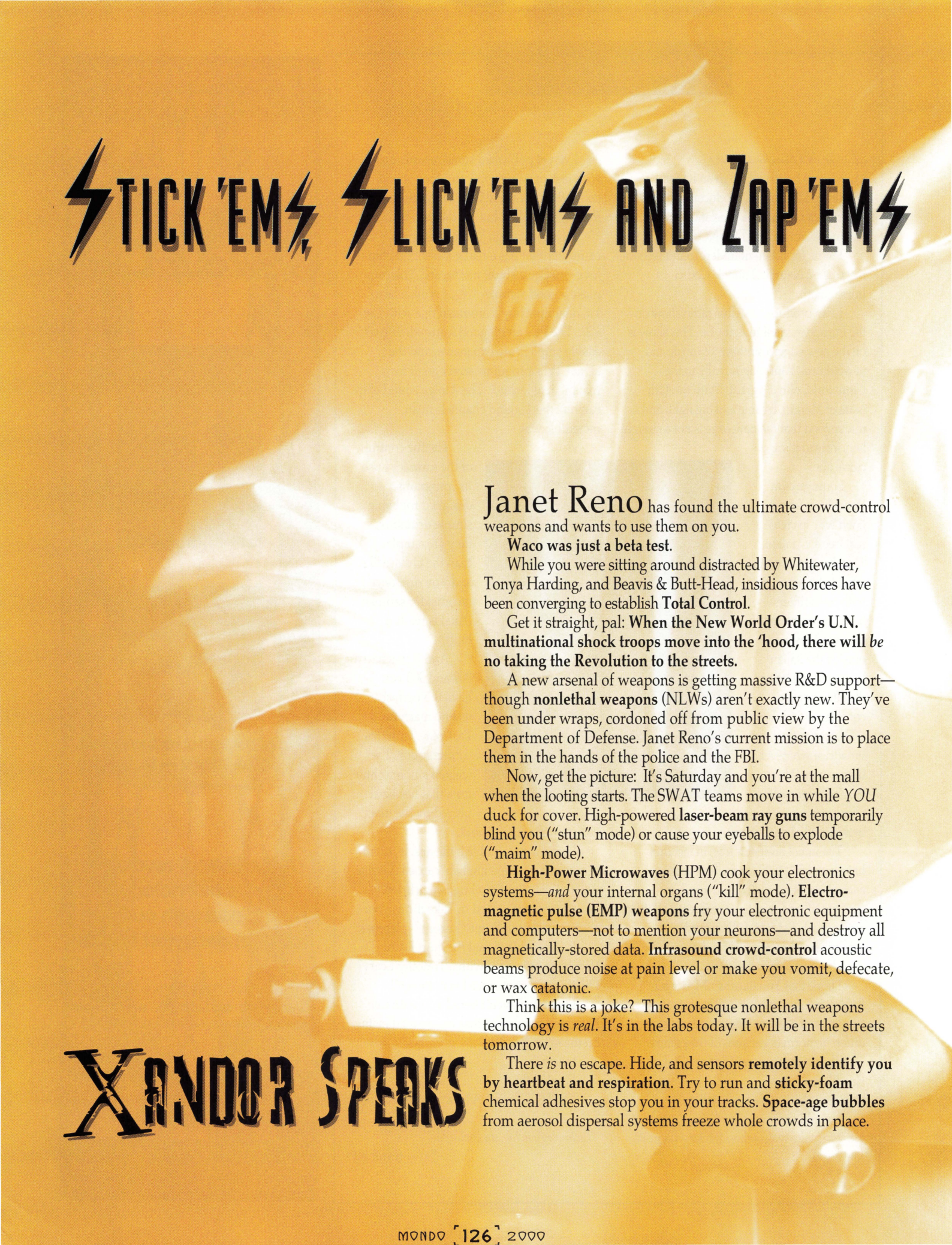

Xandor Speaks

Janet Reno has found the ultimate crowd-control weapons and wants to use them on you.

Waco was just a beta test.

While you were sitting around distracted by Whitewater, Tonya Harding, and Beavis & Butt-Head, insidious forces have been converging to establish **Total Control.**

Get it straight, pal: **When the New World Order's U.N. multinational shock troops move into the 'hood, there will *be* no taking the Revolution to the streets.**

A new arsenal of weapons is getting massive R&D support—though **nonlethal weapons** (NLWs) aren't exactly new. They've been under wraps, cordoned off from public view by the Department of Defense. Janet Reno's current mission is to place them in the hands of the police and the FBI.

Now, get the picture: It's Saturday and you're at the mall when the looting starts. The SWAT teams move in while *YOU* duck for cover. High-powered **laser-beam ray guns** temporarily blind you ("stun" mode) or cause your eyeballs to explode ("maim" mode).

High-Power Microwaves (HPM) cook your electronics systems—*and* your internal organs ("kill" mode). **Electro-magnetic pulse (EMP) weapons** fry your electronic equipment and computers—not to mention your neurons—and destroy all magnetically-stored data. **Infrasound crowd-control** acoustic beams produce noise at pain level or make you vomit, defecate, or wax catatonic.

Think this is a joke? This grotesque nonlethal weapons technology is *real*. It's in the labs today. It will be in the streets tomorrow.

There *is* no escape. Hide, and sensors **remotely identify you by heartbeat and respiration**. Try to run and **sticky-foam** chemical adhesives stop you in your tracks. **Space-age bubbles** from aerosol dispersal systems freeze whole crowds in place.

(This stuff is already being tested at prisons, like the horrific 22-hour a day isolation tank/sensory deprivation/total surveillance prison at Pelican Bay.) Try to drive away and **slick'ems** make the road too slippery to drive, while **liquid metal embrillement** (LME) and **superacids** dissolve your car, anti-traction **super-lubricants** make it impossible to steer, and chemicals turn your gasoline to jelly.

Incapacitating **calmative agents** are sprayed onto your skin, or aerosoled through the air conditioning systems. It feels strangely releasing—like being wheeled on a surgical trolley. You wake up to find yourself strapped in a 50,000-volt **electronic restraint belt** (150 of these are *already* in use in courtrooms around the country).

Cops are already using primitive NLWs, **gassing Dead Heads** with pepper and tear gas and wielding stun tech like **150,000 volt tasers** and 20,000 candlepower **dazzler** flashlights. *Anyone* can buy these goodies mail order.

The critical next step for the industry is to gain public acceptance. **Nonlethal weapons are being pushed as a sane, humane alternative**—to lethal weapons, of course. Who could possibly object? *Newsweek* portrayed them as just one step removed from toys. Videogame designers, hungry for fresh imagery, are seizing on this arsenal to cross-merchandize with the latest TV series. They'll introduce NLWs into the very bosom of the American nuclear family. The next generation of **robotic mercenaries and digital soldiers** will be entrained from earliest childhood. Is it any accident that **Star Wars phasers** are being introduced at the same time as the new Star Trek CD-ROM game? Already, Walt Disney is teaming up with Los Alamos and Sandia Labs, the same labs that developed nukes, Star Wars, and NLWs. Virtual theme parks are featuring body scans, branding, and access codes for "explorers."

The test phase for nonlethal weapons is currently slated for **expendables** in third world countries and illegal **immigrants** in border-patrol zones. And of course on our own captive people: **native Americans, convicts, "UFO" abductees, and ghetto denizens** drawn into riots fomented by provocateurs.

Next, there's field deployment. Janet Reno (is it true she lives with 35 peacocks all named Horace?) is getting an itchy trigger finger and wants to put NLWs in the hands of the **FBI and police departments** everywhere—an indispensable step in turning the U.S. into the **ultimate police state**.

Can CIA-controlled dictators and terrorists be far behind? FEMA and the U.N.-run **MJTF (Multi-Jurisdictional Task Force) have been illegally searching** house-to-house in Chicago and Cleveland for guns. Meanwhile, assault weapons have just been outlawed, so you'll have no defense against the Russian and other foreign troops now secretly participating in "training" maneuvers in other states. These guys and their **disposable pawns (bought-out gang members)** will be the first to embrace NLWs.

Big Sister for the 90's has gotta be Janet Reno. She already got her rocks off experimenting with "nonlethal" tech at the **Waco ritual-child-abuse holocaust.** It's been widely reported that she **bombarded children's rooms** all night with high-intensity lights, rock music, horrible sounds of rabbits being slaughtered and locomotives, etc. But what was suppressed by the fleabrain media is that she also used **Russian microwave and sado-acoustic mind control** tech to beam subliminal terror messages to her victims. **Dr. Mengele**, move over. Then to cover it all up, **Rottweiler Reno coldbloodedly murdered** her 89 experimental subjects, leaving one of them **hanging on a fence** for days until **vultures**, summoned by the unique musical vibrations of the conch shell, came to feed on him in full view of his horrified children.

Bet you didn't see that part on CNN. Or the part where **flames shot out of the FBI tank** into the building or where they **bulldozed it** to illegally hide the evidence. Understand three things: (1) Reno and her evil ilk are sick sick sick beyond our ability to imagine; (2) you're being kept grossly ignorant by the whore media; and (3) in your benumbed media trance, you're no longer shocked and didn't do anything to stop her, so the next time she'll be even bolder.

Footnote: the Bureau of Alcohol, Tobacco and Firearms plans to **invade Zapatista camps** in Mexico (the U.S.'s latest territorial acquisition).

Get it straight: NLWs are part of a Grand Control Plan cooked up by intelligence agencies and aerospace companies, using advanced **MK-ULTRA black-program mind-control technologies.** These include psychic warfare, remote hypnosis, brainwave- and voice-modulated microwaves and acoustic beams for remote control and inducing **voices in your head**, mind machines, and ambient trance music with hemisync subliminals on CDs and at clubs and raves, combined with strobe videos with esoteric/satanic imagery for subliminal brain entrainment.

Smile—you're on radar! What the hell are the ultrahigh-powered 750 kW NEXRAD "weather" radars now going into 150 locations nationwide *really* used for? And what are Air Force/ Navy/ ARCO's insane 1 billion watt HAARP (High Frequency Active Auroral Research Program) radar **energy beams bounced off the ionosphere** doing to our weather—*and* our brains?

It gets weirder. The dreaded **Men-in-Black** already use these weapons. They dress up as **aliens,** zap you with high-powered **laser stun guns,** abduct you onto **"UFOs"** (actually, FEMA/Wackenhut/ U.N. black helicopters). Then spychiatrist-hypnotists stick **implants** up your nose and turn you into **remote-controlled** Manchurian Candidate-style **hitmen**, or implant **suicide suggestions** if you resist. Curious how the same **ex-Army Intelligence guys** who run the nonlethal weapons programs are also into UFOs, psychotronics, remote viewing, and advanced mind fucking.

Still think you can escape to the mountains with your buried arsenal and canned foods? Ha! NLWs are spinoffs of Reagan's insane **Star Wars** SDI program, quietly renamed the Ballistic Missile Defense Organization, which is secretly planning to launch Star Wars weapons into space from **Kauai** next year. Maybe Reagan wasn't as stupid as we thought. Their real purpose is not to defend you against missiles, but to surveil and zap you from the sky with **laser beams plus psychotronic rays** to remotely hypnotize you and make you sick. Agile spot beams target specific cities and ghettos—or even individuals—with **disease and paranoia vibes**, synched with violent rock videos and TV shows heavy with subliminals.

Is this the covert plan behind the **840 satellites** using Star Wars "Brilliant Pebbles" that **Bill Gates** wants to launch? And what about the NSA's ominous Tesserae program (from the Latin word for **slaves' identity tokens** in ancient Rome!), with its "**smart dogtags**" which use cellular phone networks or satellites to locate you anywhere in the world? How does that tie in with wireless personal digital assistants, the GPS **Global Positioning System** for reading out your instant lat/long/altitude anywhere, Hillary's **smart card**, the Clipper Chip, Xerox Parc's smart badges and "ubiquitous computers," **DNA barcodes**, retinal scans, and dermatoglyphics? Is the **Mark of the Beast** here yet?

Apocalypse-trackers are freaking. Paul Virilio—the only trendy French philosopher worth reading—warned us that the next wave of consumerism was the **consumption of *protection***—the old Mafia game brought up to date. And don't forget: *both* sides will be armed—the cops *and* the ghetto kids. Or: Arm all the gangs and let them exterminate *each other*. Brilliant.

How much starker can irony get? At the same time as "food for guns" programs proliferate across the land, every kid on the block will have a phaser. **Hardware hackers will soup them up from stun to kill** (something the architecture allows). Think we've got problems now? The nuclear family will become an armed fortress while we conduct our own brand of ethnic cleansing in the 'hoods.

Endocolonialism is the name of the game. NLWs are part of the **Controllers' grand strategy:** create an **artificial crisis** climate so FEMA (Federal Emergency Monitoring and Augmentation), through its puppet Clinton, can declare **martial law, suspend all rights, and totally control YOU**. And, as Virilio has shown, "civil protectionism in this sort of affair is no longer *contemporary* with the catastrophe; it precedes and, if need be, *invents* it." Shelters, mass evacuations, forced vaccinations—these are just hints of the coming **total prison society**. The L.A. fires showed just how far they will go.

So when the next natural disaster crosses your event horizon, will you be standing in the FEMA line for water with your plastic gallon jug? And—more important—will you *drink* it? M2

Illustration by Bart "Fair Use" Nagel

Ambient

152 Minutes 33 Seconds-A Brief History Of Ambient Vol. 1

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Richard Horowitz
Irmin Schmidt/Bruno Spoerri
Ashra
Harold Budd/Brian Eno
The Grid
Christopher Franke

Disc 2
Tangerine Dream
Brian Eno/Jon Hassell
William Orbit
Gong
Hawkwind
Laraaji
Sheila Chandra
Michael Brook
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Jon Hassell
Material
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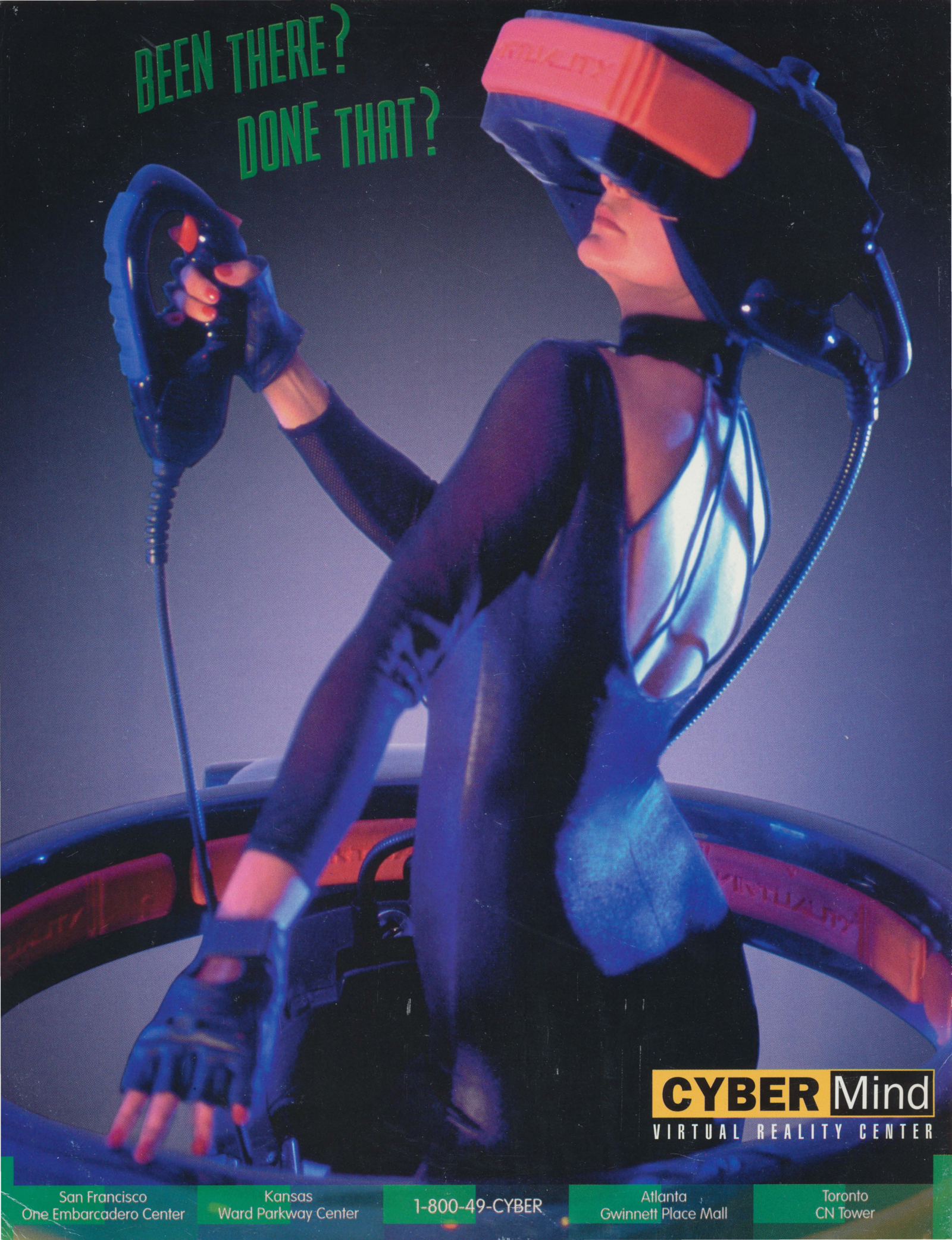
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